

Photoshop, Flash, Dreamweaver, Poser, Illustrator, FreeHand, After Effects and more...

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PAGES OF
TUTORIALS
INSIDE

Creative Collection²

Digital art skills using the best
creative software – follow our huge
collection of expert tutorials

Step-by-step guides on packages for photo manipulation,
web design, 3D, effects, illustration and more...

FROM THE MAKERS OF

COMPUTER **arts**

AND

COMPUTER **arts special**
The in-depth guide for digital creatives



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FROM THE MAKERS OF

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WELCOME

Last year the *Creative Collection* proved so popular, we decided to do it again. We discovered that by putting a year's worth of the best tutorials from *Computer Arts* and *Computer Arts Special* into one publication, people who'd never tried our magazines before could kick-start their creativity with a big collection of step-by-step guides to follow, written by some of the industry's leading designers and artists. Plus, people who have missed issues or buy the magazines infrequently can catch up with new creative software techniques.

Computer Arts has seen a year of change, so if you've not seen the magazine recently, take a look once you've tried some of the tutorials in this publication. While we still carry software tutorials, we've beefed up our industry coverage, renovated the reviews section, started a new series on setting up in new media, 3D and illustration, and most importantly, we've given the magazine a new look.

Similarly, our more practical magazine, *Computer Arts Special*, is seeing its design and content evolve in response. Grab yourself a copy of either magazine when you get a chance and you'll see what I mean. In the meantime, enjoy following the tutorials here in the *Creative Collection 02*.

Vicki Atkinson
Editor, *Computer Arts*

arts special

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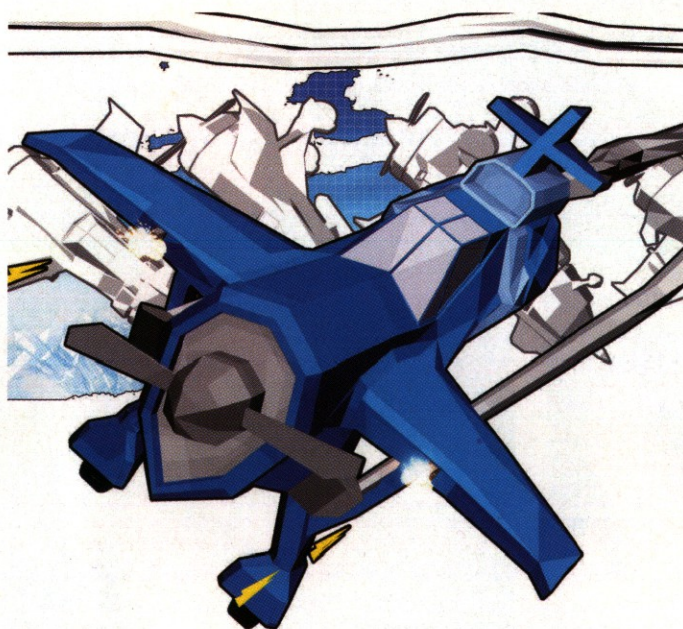
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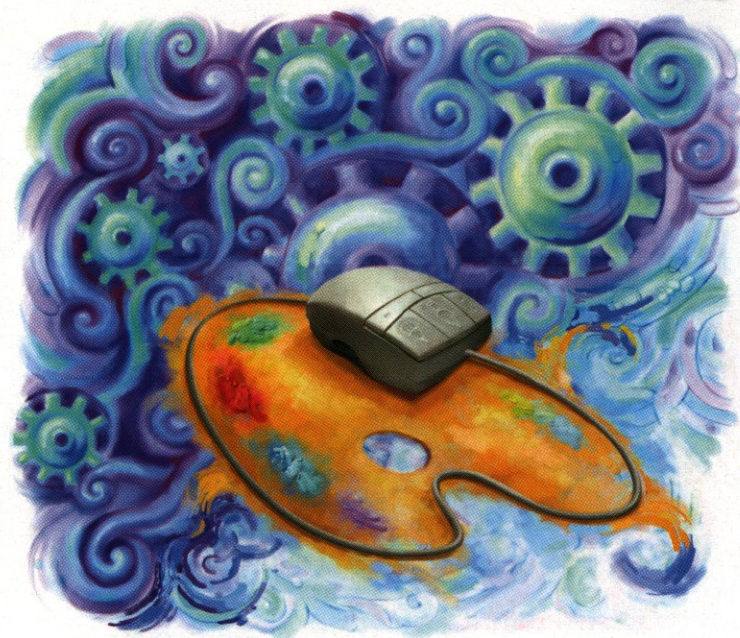
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Find out what's in the next issue of both *Computer Arts* and *Computer Arts Special*...



ON YOUR CD

The CD-ROM included with this magazine contains all the files required to follow the tutorials in the magazine, plus three great demos. But, we couldn't fit on demos of every application used. If you go to the Downloads section of the CD we have included links to download sites for every demo not found on the disc.



Photoshop

The world's favourite graphics application happens to be one that *Computer Arts* magazine specialises in covering...

From print advertising to gallery artwork, from Websites to TV graphics and film effects: if the media you're looking at has digital images in it, it's a veritable certainty that Adobe *Photoshop* was used somewhere along the line. Because of this, being able to use *Photoshop* is an essential design skill whether you're a digital artist, photographer, visual effects operator or new media designer.

Here in our second annual *Creative Collection*, we've devoted nearly 40 pages to the subject, covering everything from basic retouching skills to some crazy

artist effects that can be achieved with just a Mac or PC, a scanner and a copy of *Photoshop*. This is a selection of some of our readers' favourite *Photoshop* tutorials printed over the last year in *Computer Arts* and *Computer Arts Special*, and no matter what area of digital artwork interests you, we think these tutorials in particular are worth following. Whether it's illustration tips, colour correction info or strange techniques that you're after, it's all in this section. And you can rest assured that over the next year you'll find plenty more *Photoshop* tutorials in the pages of *Computer Arts* and *Computer Arts Special*.



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CAN WE OPEN HER EYES?

EVEN THIS AREA OUT

I KNOW THIS IS A NEGATIVE BUT, DO YOU THINK THIS BUTTERFLY LOOKS TOO RED?

LET'S SEE HOW A NIGHT SKY WOULD LOOK IN THIS SHOT

Selective Color

- Colors: ☒ Reds
 - ☐ Yellows
 - ☐ Greens
 - ☐ Cyans
 - ☐ Blues
 - ☐ Magentas
 - ☐ Whites
 - ☐ Neutrals
 - ☐ Blacks
- Cyan: 0 %
Magent: 0 %
Yellow: 0 %
Black: 0 %

NOT A STONE UP HERE

ADD A MOON

ILFORD HP5 PLUS

3485

ILFORD HP5 PLUS

Levels

Channel: CMYK

Input Levels: 0 1.00 255

Output Levels: 0 255

- OK
- Cancel
- Load...
- Save...
- Auto
- Preview

LET'S MAKE THE SHAPES HERE MUCH MORE RECTANGULAR



Retouching basics in Photoshop 7

Learn the basics of colour correction and digital imaging using *Photoshop 7*...



Photography and words
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Files on disc

The files you need to
complete this tutorial are on
the CD in the folder Tutorial\
Photoshop\Retouching.



Are you curious about image-editing? Or would you like a refresher course in things you may have tried to teach yourself? Or maybe you saw a co-worker or friend clicking away in the world's leading image-editing program and thought, "Hey, I could do that too."

This tutorial will get you started in the most basic areas of photo retouching. We'll walk you through the essentials of colour correction, and give you step-by-

step instructions on how to remove wrinkles from faces and tourists from scenic shots. For those of you interested in altering the perspective of the world around you, we'll touch on that too.

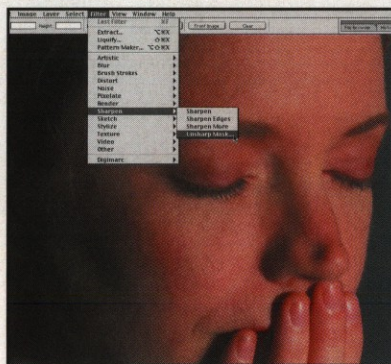
So if you just picked up a digital camera or flatbed scanner and would like to improve your photos, this tutorial is essential. And for those who have admired *Photoshop* from afar but didn't know where to start, turn the page and start at step number one. ➤

Part 1: Sharpening

Almost every raw scan could use a little sharpening. We'll show you how to use the Unsharp Mask filter...

Measuring ink

You can click on the image using the Eyedropper tool to measure the ink amounts. The ink amounts will be displayed in the info palette. To set up what information is being displayed in the info palette, click on the arrow in the upper-right and choose Palette Options. There are two different colour readouts. We set the first to total ink. This adds up the ink in the different channels of the image you are measuring. We set the second readout to CMYK since our image is destined for print. Here you will see the ink coverage for the individual channels.



1 When a film transparency is scanned it tends to become a little softer as you will notice here, a little of the original sharpness is lost. Open the file Portrait.psd from the Tutorial/Retouching folder on the CD. We will use the Unsharp Mask filter to add some more sharpness. From the menu choose Filter>Sharpen>Unsharp Mask.



2 The Amount slider determines how much the contrast of the pixels are increased. The Radius slider determines how many pixels around the edge pixels your sharpening will affect. The Threshold slider will determine how different the pixels must be from the rest of the image before the filter considers them edge pixels and sharpens them.



3 In this instance, leave the threshold set at 0 so that it affects all of the pixels in the image. Try experimenting with different combinations of the other two sliders. As you are adjusting the sliders keep an eye on the image to see if you are defining the edges too much, you don't want to over sharpen. We achieved a very good result by setting the Radius to 200 and the Amount to 1.0.

Part 2: Levels

Perform essential colour adjustments to the image and individual channels using the Levels options...

Selective colour

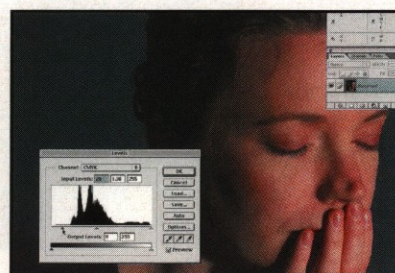
Selective colour correction is based on the amount of ink used to create each primary colour. You can modify the amount of process inks which make up each primary colour selectively. If you have an image of a blue sky with green grass, and you think the grass looks perfect but the sky lacks cyan, you can increase the process cyan ink in the blue component (selectively) without affecting the amount of cyan in the green component (the grass).



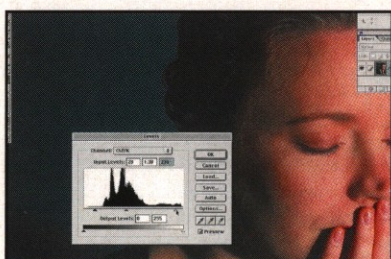
1 From the menu choose Image>Adjustments>Levels to access the Levels dialog box. The input levels are represented by a histogram. The histogram can then be adjusted by entering numeric values in the text boxes, or by simply adjusting the sliders underneath the histogram. You should make sure that preview is enabled in the bottom right corner.



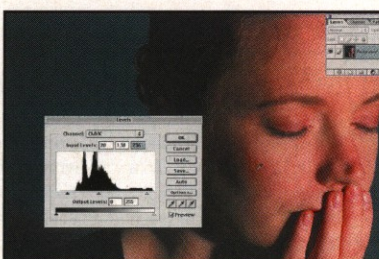
2 The middle slider controls the midtones, that is where we'll begin our adjustments. Overall, the image looks a little too dark, so drag the middle slider to the left to lighten the midtones. You will see the on-screen image lighten as you drag the slider. You will also notice the number in the centre text box changing as you drag. Stop when the number reaches around 1.38.



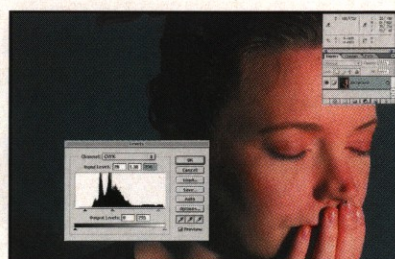
3 Now that we have lightened the midtones, you'll notice that it has taken away some contrast from the image. To remedy this, let's start by darkening the shadows in the image. The shadows are controlled by the left slider under the histogram. Grab the left slider and start to move it to the right. Stop when you notice the number in the shadows text box reach around 28.



4 What we need to do now is brighten the highlights in the image. The slider on the far right controls the highlights. Drag it to the left to begin lightening the highlights in the image, stop when it reaches around 236. You will notice as you move the highlight or shadow sliders that the mid-tones slider will move automatically to correspond to your adjustments.



5 Now that we have adjusted the basic midtones, highlights, and shadows it's time to pay attention to the actual colour of the image. Visually, her skin looks a little too pink. But let's have a look at the actual ink amounts in the individual channels. By moving the mouse over the image with the Levels dialog open you will automatically have access to the Eyedropper tool.



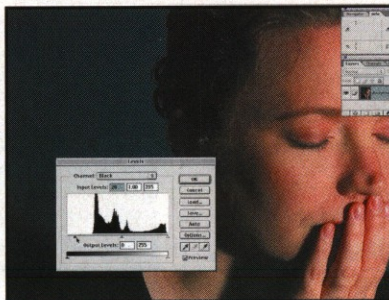
6 Click on an area of flesh in the image and have a look at what the info box says. If you check a few places you will notice that there is definitely more magenta in the image than there is yellow, giving the flesh its pinkish colour. Checking the info box is a good habit to get into, you never know when your monitor calibration may not be entirely accurate, but the numbers don't lie.



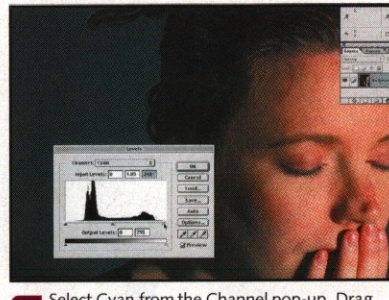
This tutorial on retouching was originally printed in issue 35 of Computer Arts Special, 2002. Every issue of Computer Arts and Computer Arts Special includes a selection of great creative software tutorials. Never miss an issue when you subscribe to page 46.



7 From the Channel pop-up in the Levels dialog, choose the Magenta channel only. Notice that the histogram changes to only display the contents of the Magenta channel, any adjustments made to the sliders will only affect this channel. Select the midtones slider and drag it to the left until the midtones text box displays a number of about 1.10.



8 Now, just looking at the image we notice that dark areas look a little flat. So, firstly, switch the Channel pop-up to Black so that now you are working with the black channel only. Drag the Shadow slider to the right until the input level in the text box is at about 20. Notice how much more rich the dark areas become.



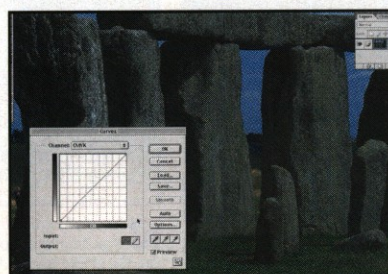
9 Select Cyan from the Channel pop-up. Drag the midtones slider to the left until the input level becomes 1.04, and drag the highlights slider to the left until the input level becomes 248. Click OK when you have finished. By reducing the cyan in the highlights and midtones we manage to make her skin appear a little lighter. Save the changes you have made, we'll come back to this image later on.

Part 3: Curves

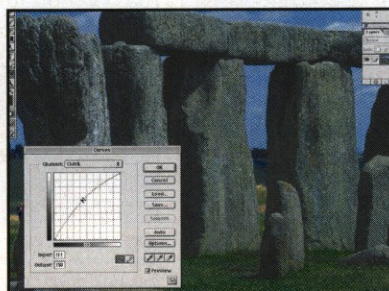
Curves, like Levels, will enable you to adjust tonal values of an image. But Curves aren't limited to the three variables: highlights, midtones, and shadows...

Adjustment layers

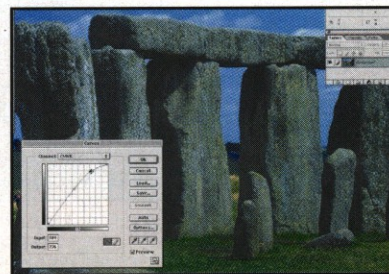
Another way to colour correct your images is to use Adjustment layers. One advantage is that you do not affect the original image, since your adjustments only appear when the layer is switched on. You can minimize effects by reducing the Opacity of the Adjustment layer, or create interesting effects by changing the Blending mode. Also, you can use a Layer Mask on your Adjustment layer. To create a new Adjustment layer select Layer > New Adjustment Layer from the menu, or from the create new fill or Adjustment layer icon at the bottom of the Layers palette.



1 Open the file stonehenge.psd from the cover CD. And from the menu select Image > Adjustments > Curves. The horizontal axis of the graph represents input levels (original intensity values of your image). The vertical axis represents the output levels (new colour values). By default, the input and output levels are identical resulting in a perfect 45-degree line.



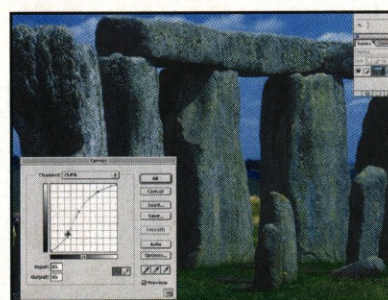
2 Click on middle of the diagonal line, this will add a new point to your curve. Now, start to drag this curve upwards and to the left until the input text box reads around 111, and the output text box reads around 150. You will notice that this has a very similar effect to lightening the midtones of an image using Levels.



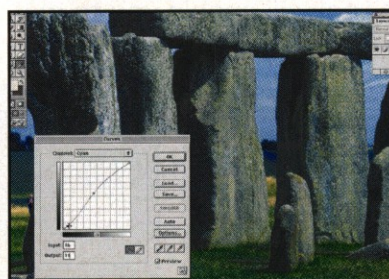
3 Although this curve adjustment lightens the image overall, we lose some of the contrast in the image. The first thing we need to do is bring a little life to the highlights. Click on your curve approximately half way between the new point you made and the highlight point. This creates a new point, drag it slightly upwards and to the left until the input is 184 and the output is 226.

Panning/zooming

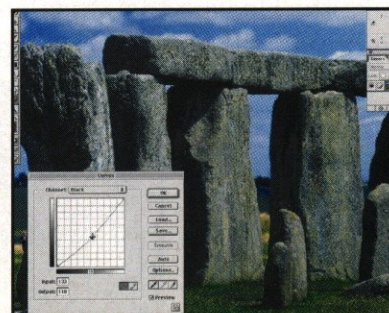
When you are making adjustments and you have an open dialog box like Levels or Curves, you can see your image in the background. But what about the parts of the image that are off screen or what about if you want to zoom in? Worry not, you do not have to close the dialog box to access the tools you need. You can access the Panning tool by holding down the Space bar. You can zoom in by holding down the spacebar and the Command key. You can zoom out by holding down the Space bar, the Command key and Option. All of these features are still available while your dialog box is open and you're making adjustments.



4 Now we need to punch up some of the darker areas. Click on the curve midway between the centre point and the shadows point. This will add another point to the curve. Drag this point down and slightly to the right, you will notice the increased saturation that begins to occur in the tones between the midtones and the shadows. Stop dragging when input and output both read 65.



5 From the Channel pop-up select Cyan. Now we are just going to adjust the curve for the Cyan channel. Create a new point in the centre of the curve and drag it upwards and to the left to remove some of the blue colour from the stones (input 116/output 137). Add another point very close to the shadow point and drag it to the right a little to saturate some of the darker cyan areas (input 16/output 11).



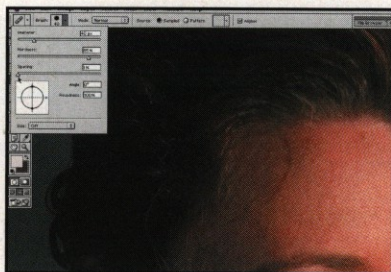
6 And finally, let's darken the shadows a little so that they don't look so flat. Select black from the Channel pop-up and add a mid point to the curve. Drag it down and slightly over to the right (input 133/output 110). Click OK to apply the adjustments and save your changes. We'll be returning to this image as well. >

Part 4: The Healing tool

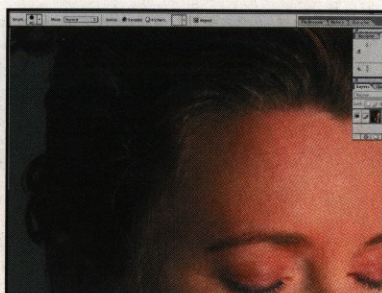
Photoshop 7 includes the magical Healing tool. You won't believe how well this tool works!

Curves pencil

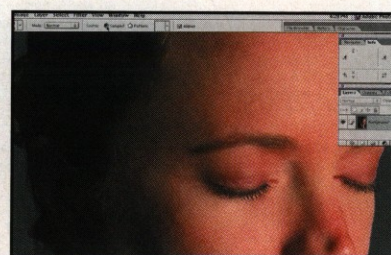
For those of you feeling brave there is an interesting tool in the Curves palette. Click on the pencil icon near the bottom. Using the pencil you can draw a new curve from scratch on the grid area. You can edit your new curves by clicking on the curves button to the left of the pencil. This will add editable points along your new curve. Don't worry if you don't like what you've done. Hold down the Option/Alt key and watch the cancel button turn into a reset button. Clicking the Reset button will return your curve and your image to the original state.



1 Go back to the file Portrait.psd that you were working on earlier. Select the Healing tool from the toolbar (it looks like a bandage). In the tool options bar at the top, click on the brush icon and create a brush with a Size of 40 pixels, Hardness of 85 per cent, and Spacing of 1 per cent. Leave the Mode set to Normal, and select Sampled as your source. Enable the Aligned function.



2 The first area we want to work on is her hairline. There are some stray strands of hair around her temple. Hold down the Option/Alt key and click in a nice clear area nearby the stray bits of hair to define the sampling point. Now it's as simple as clicking and dragging in the image to heal desired areas. Start with the stray bits of hair.



3 As you click and drag you will notice how the sampled pixels are melded with the existing pixels when you release the mouse button. It's a good idea to define new and close sampling points often as you move around the image so that the effect looks seamless. Use the Healing tool wherever you think the image needs work, perhaps the wrinkles around her eyes and in her neck, various skin blemishes and unruly bits of hair, etc.

Part 5: The clone stamp

Although it has been with us for a while now, the Clone Stamp tool still proves quite useful, especially when removing tourists...

Aligned

When using the Healing or the Clone Stamp tool a useful feature is the Aligned option. If you select Aligned in the tool options bar, the current sampling point or distance/angle ratio is preserved. This means that if you are cloning using a source point 10mm to the right, as you move around the image the sampling point will always be 10mm to the right. If you deselect Aligned in the tool options bar, the sampled pixels are applied from the initial sampling point each time.



1 Open the stonehenge.psd file that you have been working on. Zoom in on the lower left corner and you'll notice that a pesky tourist has snuck into our beautiful photograph. Select the Clone Stamp tool from the toolbox, it is under the Healing tool. Choose the hard round 13 pixel brush from the Brush Presets in the tool options bar.



2 Leave the Opacity set at 100 per cent and enable the Aligned function in the tool options bar. Hold down Option/Alt and click in the image to define a source or sampling point. In this case option-click just to the left of the pesky tourist. And then click with the tool on the tourist.



3 You will notice that an exact replica of the area you sampled replaces the area you just clicked on. Go ahead and use this method to cover the entire tourist, don't be afraid to sample different areas as you move around slightly, and only use the Cloning tool up to the edge of the stone, we'd like to keep that bit.

Part 6: The Patch tool

Like the Healing tool, the Patch tool will enable you to match texture, lighting, and shadow of sampled pixels to source pixels...



1 Select the Patch tool from the toolbar, and choose source from the tool options bar at the top of the screen. It is in the Healing tool pop-up menu. In the stonehenge.psd file you have been working on, draw a selection using the Patch tool around the pitted area in the large stone on the left.



2 Now, still using the Patch tool, simply drag the selected area upwards to a clearer area of the stone from which you want to sample and let it go. The original selected area is patched by the sampled pixels. Deselect (Command/Ctrl+D), and move down in the image a little, there are some smaller pitted areas under the one you just fixed. In the tool options bar, select destination instead of source.



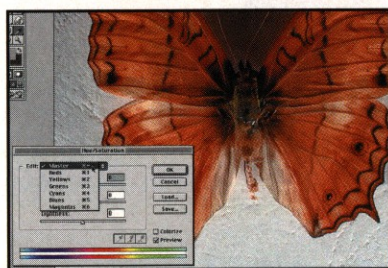
3 This time draw a selection around a clear area, approximately the same size and shape of the pitted area you want to fix. Drag that selection onto the pitted area that you want to fix and release it. With destination enabled, the newly selected area is patched with the originally selected pixels.

Part 7: Hue/Saturation

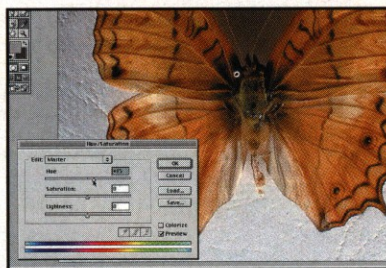
Here we use the Hue/Saturation sliders to make some basic colour adjustments to our butterfly...

Saving adjustments

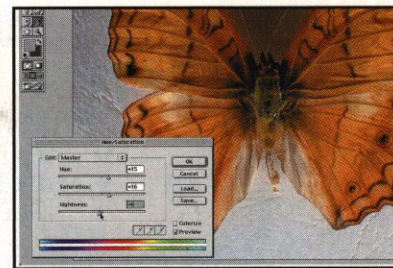
When making adjustments to your images using levels or Selective Colour you will notice a Save button in the dialog box. Clicking the Save button will create a file on your computer saving the settings you have created in the dialog box. It is handy to save settings if you are going to do similar corrections to a number of images that were photographed under the same conditions. You can access your saved settings next time you open the dialog box by clicking the Load button.



1 Open the file butterfly.psd. From the menu choose Image>Adjustments>Hue/Saturation. Leave the Edit pop-up set at Master so that we change all of the colours at once. You may also choose other specified colour ranges from this pop-up. Things like reds, greens, yellows, etc. But leave it set at Master for this particular adjustment.



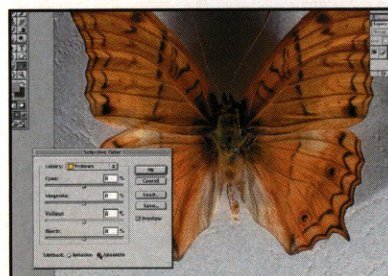
2 The butterfly is looking a little too red, we'd like it to appear more golden in colour. So drag the Hue slider at the top towards the right until the value is approximately +15. The value displayed in the text box represents the number of degrees you have moved around the colour wheel from the pixel's original colour.



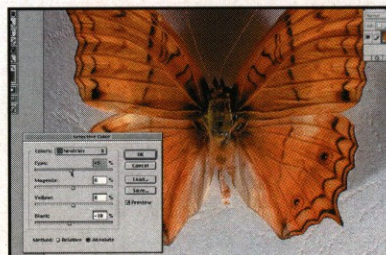
3 Now, let's saturate the colour of the butterfly by dragging the Saturation slider to the right until its value is increased to +16. Although this has helped to saturate the colour, it has also brightened the image a little too much. To remedy this, drag the Lightness slider to the left to darken the image until the resulting value is -6.

Part 8: Selective colour

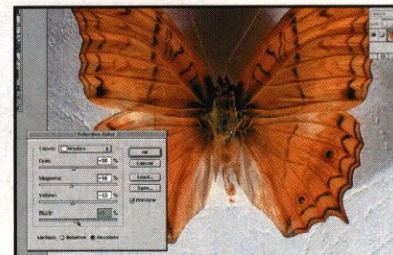
Perform some additional colour adjustments to the butterfly photo using the Selective Colour controls...



1 The butterfly is looking a little greenish and dirty still, so from the menu choose Image>Adjustments>Selective Colour. Choose yellows from the Colors pop-up menu to affect the yellow colours in the image only. Enable the Absolute method at the bottom of the dialog box for a more dramatic colour adjustment.



2 Reduce the Cyan slider to about -10 to remove some cyan from the yellow areas. Now switch the colour set in the Colors pop-up to Neutrals, this will affect mainly the midtone neutral values throughout the entire image. Adjust the Cyan slider to about -5 and the Black slider to about -10 to remove some of the overall muddy feeling from the image.



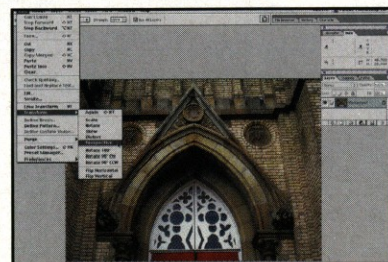
3 Switch the Color pop-up to blacks and add 7 per cent cyan and 8 per cent black to darken the blacks. Now, switch the Color pop-up to whites to brighten the whites in the background. Reduce the Cyan slider to -10 per cent, the Magenta slider to -16 per cent, the Yellow slider to -13 per cent, and the Black slider to -5 per cent. This gives you a good indication of the usefulness of selective colour.

Part 9: Adjusting perspective

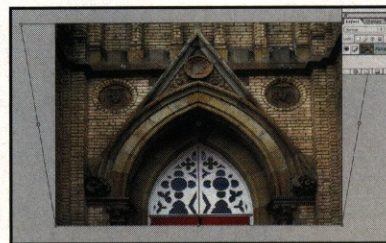
This little trick will save you carrying around a step-ladder when you want to photograph things that are above your head...

Healing

You will notice as you use the Healing tool it melds areas that you paint with the pixels around them. This can sometimes be problematic if the area you want to heal has strong contrast at the edges, the melding could ruin your contrast. Try creating a selection that precisely follows the boundary created by the high contrast pixels. When you paint with the Healing tool inside the selection, the selection will prevent anything from bleeding in from the outside.



1 Open the file church.psd. Choose Select>All from the menu (Command/Ctrl+A) to select the image. Choose Edit>Transform>Perspective from the menu. The image tapers towards the top because we are looking up at it. To remedy this grab the top-left corner point and pull it to the left.



2 You will notice that as you pull the top-left point out to the left the top-right point reciprocates by moving equally in the opposite direction outwards to the right. This is the advantage of using the perspective transform function. Hit the Enter key when the image starts to look like you are viewing it straight on.



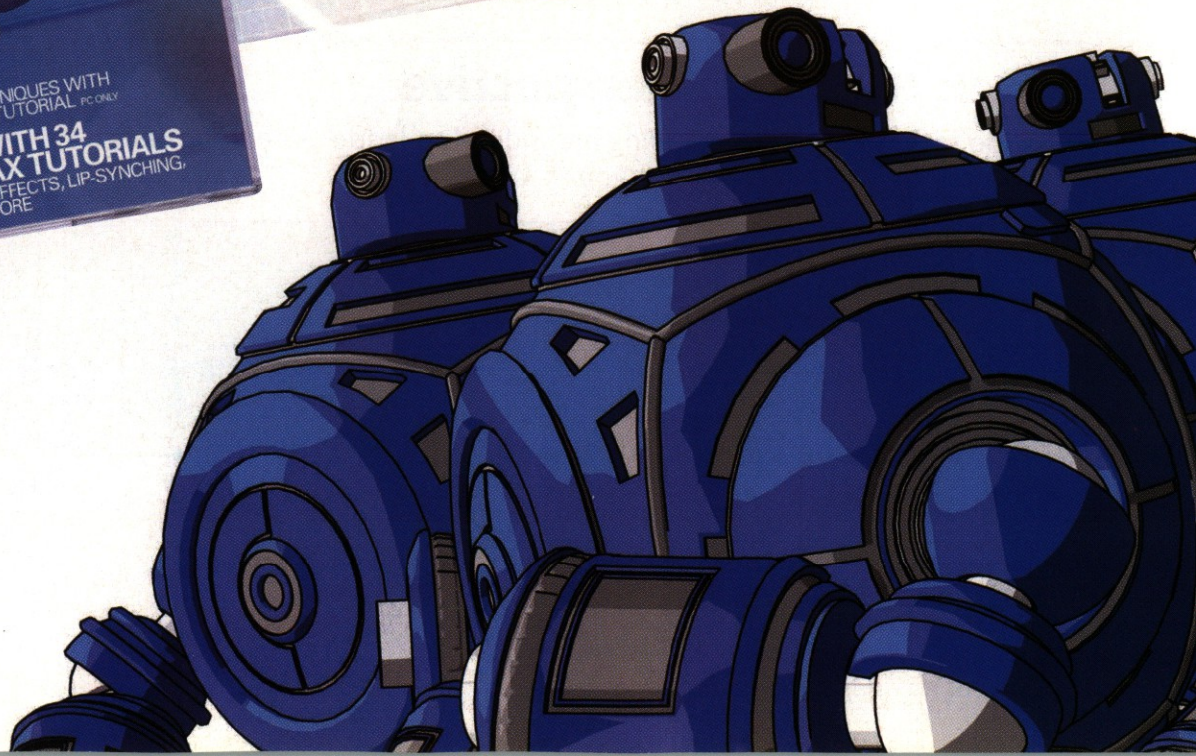
3 Although you have improved the perspective, the image appears too short and too wide. To remedy this choose Edit>Transform>Scale from the menu. Grab the centre point at the bottom of the bounding box and pull it downward until the image height starts to look more natural. Hit the Enter key when the image looks correct.



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PLUS A4 LASER PRINTER
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Tired of churning out multi-layered early 90s-style, space-age noise? Then introduce some swinging 60s psychedelia...



On your CD

You'll find all the files you need on the coverdisc, in the folder Tutorial\Photoshop\Psychedelia. Artwork and expertise provided by Richard May – you can contact him on [e] rich@pixelsurgeon.com, or browse through his creations at [w] www.richard-may.com or [w] www.pixelsurgeon.co.uk.



Client demand is always shifting, as it meanders through emerging trends. One of the styles in vogue right now is retro chic: a backlash against the faceless, flat-coloured, monotone vector style; against the shiny, cyber-fuelled age of polished illustration. Clients are looking for something different to your scratchy,

layered *Photoshop* illo, something that's funky, fun and bright.

In this tutorial we'll peek under the hood of an illustration that's exactly this: a *Charlie's Angels*-stylee *Photoshop* flashback. We'll dissect the working method behind it into techniques that you can apply to your own work. What you will discover is that some of the most effective illustration work is, in

essence, a simple creature once broken down into its component parts. Style is *how* you wear, not what you wear.

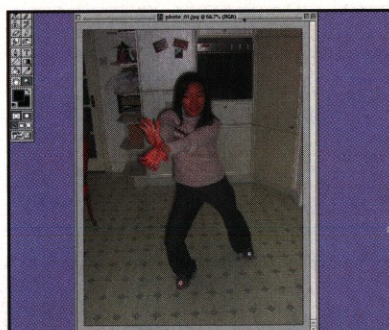
Be prepared to let down your guard and work quite speedily, rolling with the inevitable mistakes. We'll even go old school in Part 3, encouraging you to doodle with marker pens. For this tutorial, our advice is to forget about the History palette...

Part 1: Back to basics

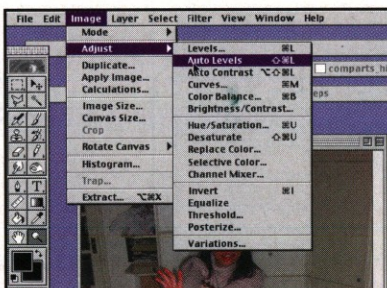
Our image will begin with a photograph – take your pick from the selection on the CD in Tutorial\Photoshop\Psychodelia, or choose one of your own...

RGB mode

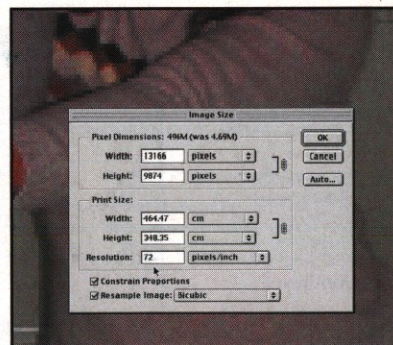
Instead of working in CMYK mode, work in RGB with CMYK Preview mode turned on at all times. It's not 100 per cent accurate, but it will save you time. Provided that your monitor is calibrated correctly, what you see onscreen is what you'll get upon printing. For illustration work of this nature, it's an acceptable way of working.



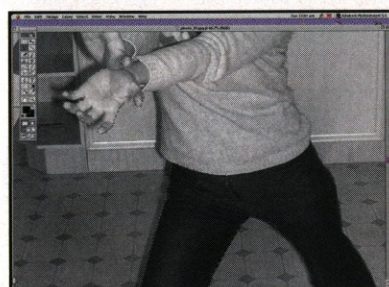
1 We've provided three images for you to choose from. They were taken with a Nikon 880, but any camera will suffice. Alternatively, you can use your own digital image or just scan in a photo...



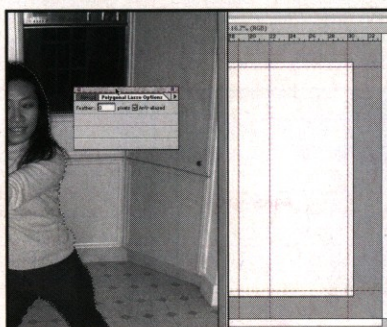
2 Use Auto Levels to bring some much needed contrast and definition to these slightly murky photographs. No other image correction is needed, so there's no point going crazy with the Rubber Stamp tool unless your subject looks like the Elephant Man.



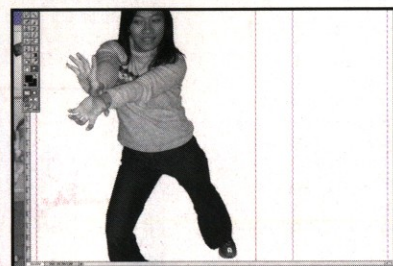
3 Resize the image from 72 to 300dpi. Don't worry about the inevitable image artefacts, it's not a problem here.



4 Desaturate, then select the Polygonal Lasso tool and cut around your subject. There's no need to create a work path, unless you're intent on doing so, and the resulting angular edges (a result of this rough cut-out process) are part of the style. Just make sure that you set the tool to Anti-alias.



5 Next you need to create a new canvas measuring 295mmx225mm (width by height) at 300dpi with a white background. This will be your main working area.



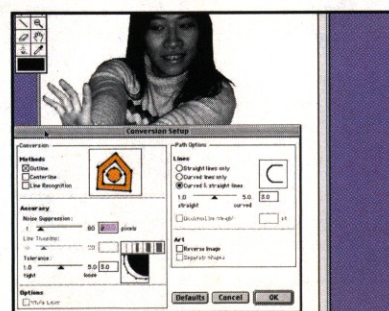
6 Go back to the photograph and invert the selection (Apple/Ctrl+Shift+I). Delete the background to white, then crop to the edges of the figure to reduce file size. Increase the contrast somewhat, as this will aid the next stage which is to leave Photoshop and open Adobe Streamline or your chosen vector application. Save the file.

Part 2: Strange shapes

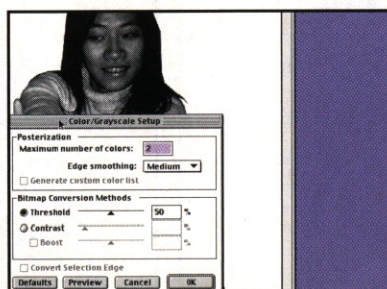
The next stage is importing bits and pieces into your favourite vector application – if you don't have access to a vector app, you'll find the EPS file on the disc (Figure.eps)...

Photoshop vectors

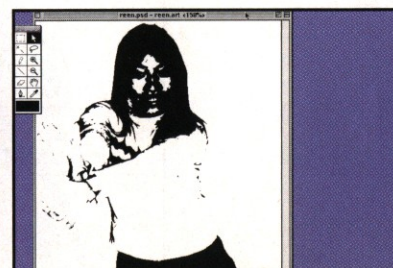
Photoshop 5.5 was used for this tutorial, but if you're using version 6 or 7 you'll know that Photoshop deals with vectors as follows. Shapes are predefined vector shapes, loaded into Photoshop-like brushes. These can be dragged onto your artwork and resized at will, as they use a vector layer clipping path. You can paste vector artwork and save it as paths, or allow Photoshop to rasterise from the off. The first two methods enable you to save paths only (any colour or fill information is lost). Only in the Rasterise option can you keep the colours, graduations and line weights from Illustrator or FreeHand. This is what we're doing with version 5.5.



1 Open your preferred vector application and convert the bitmap image to paths. Streamline is custom-built for this very purpose, so if you have the app, use it as the middleman before firing up Illustrator or FreeHand. The same effect – a sort of black and white woodcut relief – can be easily achieved in Illustrator, but will require more time.



2 Play around with the Conversion settings. Streamline can be pretty random, but you're not aiming for any predefined, perfect result. As long as the figure retains some degree of definition, you'll be fine. You can always use Illustrator or FreeHand afterwards to tidy up. Don't worry about Streamline creating a million messy paths, as everything will be returning to Photoshop.



3 You may discover, despite your best efforts, that you're unable to coax Streamline into producing a satisfyingly solid or legible shape. Play with varying degrees of Contrast and Level effects in Photoshop. You need to achieve the sharpest result with as little midtone as possible. One option is to add a five-pixel stroke around the outside edge of the selection. This will at least guarantee the outline of the figure.

Part 3: Free your mind

Next, we'll throw everything at the wall and see what sticks. In this case, it's what you don't do that counts...

Scaling down

Don't decide on a final size for your figures at this stage, unless you're absolutely sure or have a page design to work around. As long as you're working within the edges of your canvas, you'll be fine and can always scale down later in relation to other elements of the piece. Basically, go with whatever looks or feels right.

The doodles...

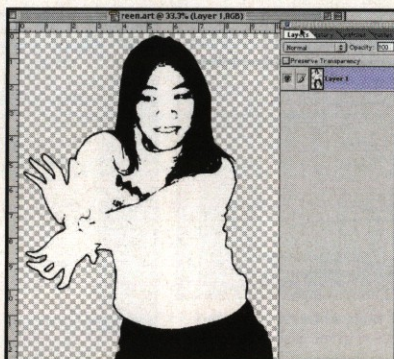
If you spent all your money on the *Photoshop 7* upgrade and found yourself three quid short of a scanner, the pattern doodles are on the coverdisc in both raw scan and vector versions.

Colour vigilance

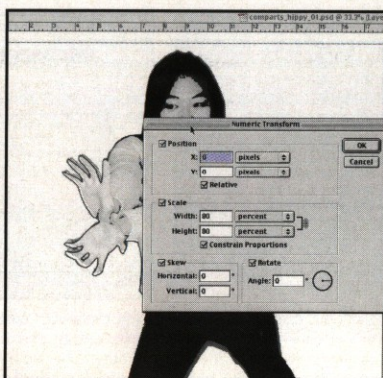
When using the Colour Picker to choose a Hue for adding scratchy brush marks, be sure to hide any overlapping Soft Light duplicate layers. It's easy to miss a minor colour discrepancy on a monitor, which may well be glaringly obvious in print. The idea is to let loose, but keep an eye on things.

Improvise

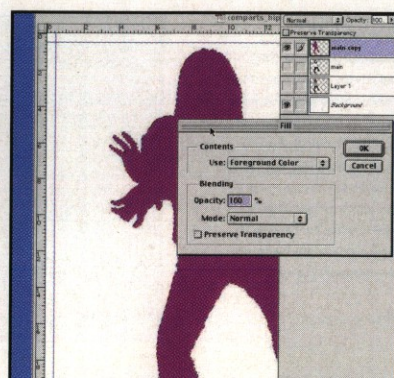
Just carve into the shapes using whatever tool comes to hand. If you're afraid of making mistakes, simply duplicate and hide the layer. Of course, you have the History feature, but as invaluable as this can be it is still easy to get lazy.



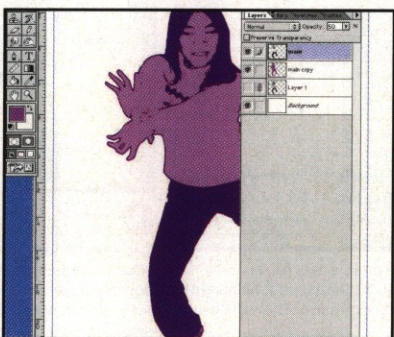
1 Bring the vector file into *Photoshop* and rasterise. You'll discover that part of the layer may be filled with white, especially if you added a keyline by using the Stroke option earlier. One extra thing to bear in mind at this stage, is the larger the rasterised import the more leeway you'll have with positioning and general composition.



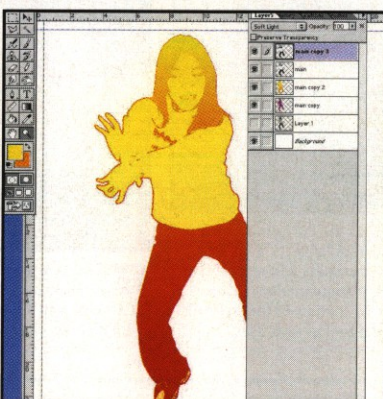
2 Drag the black and white vector file (now a PSD) onto your canvas. The photograph layer can be used as a guide later, so bring both down to an equal size by scaling numerically. It's not important to be exact, and you may wish to discard the photo layer completely; it's not essential.



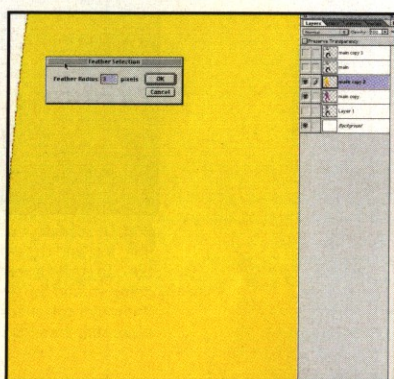
3 Hide the photograph layer and duplicate the vector layer (which we'll refer to as the main layer). Hide the original main layer. Ctrl-click on the copied layer and fill (100 per cent opacity) with a colour of your choosing. Now bring the original main layer to the top and make it visible.



4 Change the original black and white main layer to Soft Light, then duplicate. Now duplicate the filled layer, then Apple/Ctrl-click on the copy to select the outline. Pick two colours (whatever takes your fancy, as long as they're not from the same hue as the original fill) and create a vertical gradient to fill this outline. Ensure that the two black and white Soft Light layers are above this gradient layer.



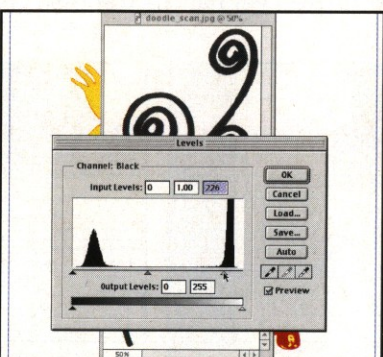
5 Merge the layers together (but leave the original block fill layer intact for later). This in itself requires a degree of confidence, especially if you're used to keeping all layers available when working – you can do it all again if you make mistakes.



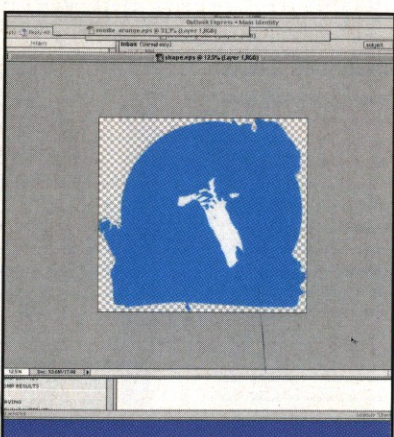
6 At this stage, the layer may be a bit rough around the edges. To remedy this, choose Select>Modify>Contract and do so by one or two pixels. Then go to Select>Feather and do so by the same amount. Invert the selection (as in Step 6) and trim the fat by hitting Delete.



7 Now, whip out a marker pen and have a doodle. Draw whatever you like, providing that it's in keeping with the overall style of the image you're creating and can be used as a pattern. Don't, for example, start drawing TIE Fighters.



8 Adjust the Level sliders to remove any unwanted noise, save and open in your vector application in order to convert to paths and add colour fills, then go back into *Photoshop*. Alternatively, add colour fills in *Photoshop* by Apple/Ctrl-clicking on the layer and repeating the previous steps for adding fills and effects.



9 Drag the doodle file onto the main canvas, then open up shape.eps (on the disc) and drag this anywhere onto the canvas.

Be individual

Bring in layers from previous images you've created to add shapes and textures. Not all of the elements of this illustration are on the disc. If you're simply attempting a carbon copy of what you see here, you're missing the point.

Cropping for speed

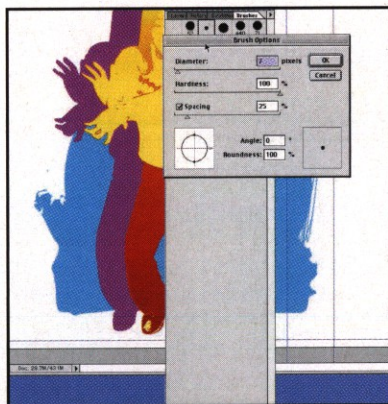
It may sound like the most obvious thing in the world, but as you add more layers, your canvas will gradually take on weight. Huge files slow you down and break up your workflow, so be sure to occasionally select the entire canvas and crop. Some layers with Soft Light effects may float off the edge without you noticing. You can't keep track of everything so, as long as everything looks like it's within your work area, crop to save.

Duplicate

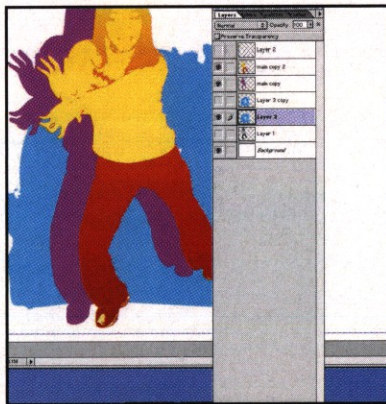
A useful trick is to duplicate a layer, then work on the duplicate with the Eraser tool with soft edge. Wipe out various sections to achieve more dramatic graduation effects over specific areas. Just use the Colour Balance to bring your overlaying layer into line with the one beneath.

Always subtract

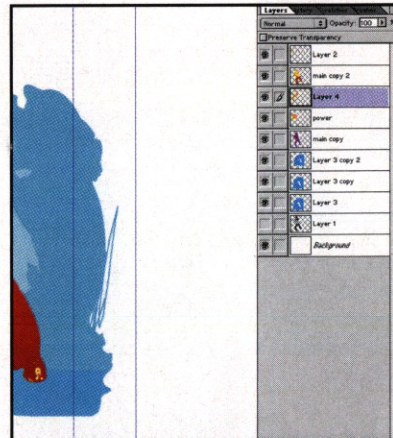
A successful illustration is one that does the job with the least amount of fuss. Better to spend more time taking elements away from the final image than you did adding them in the first place. Treat the image as you would a real canvas; just throw everything you have at the wall. Then spend most of your time deciding what to leave out.



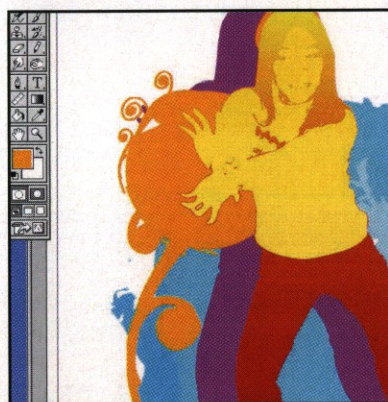
10 Bring the original block fill, figure layer back and offset it behind the main figure layer. Don't worry about the colour scheme being all over the place, as you'll be bringing everything into line later. After you've created the figure shadow, position the shape layer behind it (wherever looks good).



11 Duplicate the shape layer, and Apple/Ctrl-click to fill with a gradient. Play around by multiplying the layer many times and applying various layer effects. There are no definite rules here, provided that the overall composition works. No two illustrations should look the same.



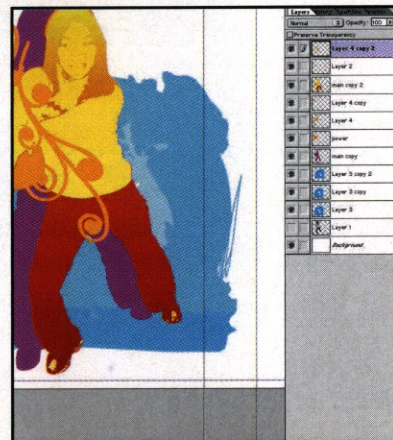
12 If you feel inclined, go for some scratchy effects using an anti-aliased brush set to about six or seven pixels in diameter. Be sparing – too much and you'll be on a boat to Gimmick Island.



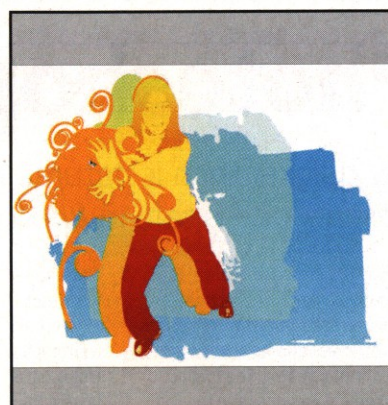
13 Create another layer and use the Elliptical Marquee tool to draw a simple circle, filling with a solid colour (the same colour that you chose for the doodle colour fills). Duplicate the doodle shapes a few times and arrange them around the solid circle fill.



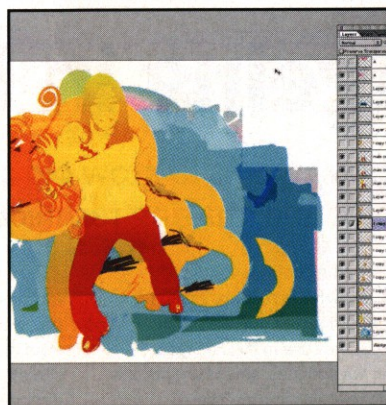
14 Inevitably, the happy accident will rear its head. As you're duplicating away, adding various frills to your shapes, you'll find that a particular layer may sit quite nicely behind the head of the figure, for example, or the edge of another shape will create an unexpected feature on the other side of the illustration. This is what it's all about. The idea is to play around until the illustration has a certain weight and balance. As vague and non-committal as this may sound, there's no other way to get things looking 'right'.



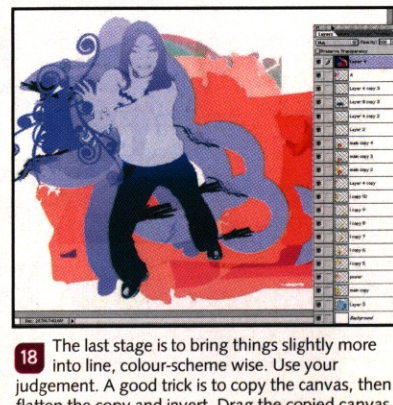
15 Bring some of the doodle layers to the top to add a sense of depth. You're not going for a 3D look, but the image will look lifeless if everything appears to be on one level.



16 Time to add some gradients. If over-used, they're ostensibly cheesy and dated, but we're deliberately going for that cool, retro look. Still, use them sparingly. Simply choose your layer and experiment. You'll often find that a completely different colour scheme will be more suitable.



17 The only other thing to do now is keep building and adding effects and shapes, and take elements away if things get too crowded. You don't want to overdo it. The background can also be extended as far as you like, depending on the context of the final image.



18 The last stage is to bring things slightly more into line, colour-scheme wise. Use your judgement. A good trick is to copy the canvas, then flatten the copy and invert. Drag the copied canvas back onto your original as a separate layer (ensuring that the positioning is exact). Add a hue or colour or the often-misunderstood Difference effect (which may give you a nice pseudo keyline). This calms things down a touch. If your illustration is suddenly a different beast, that's a good thing.



This psychedelia tutorial was originally printed in issue 70 of *Computer Arts*, 2002. Every issue of *Computer Arts* and *Computer Arts Special* includes a selection of great creative software tutorials. Never miss an issue when you subscribe on page 46.



Ageing in Photoshop

Nobody wants to grow old any quicker than is natural. But with good photos and imaging techniques, no-one is safe in *Photoshop*...



On the CD

Before you begin, find the folder Tutorial\Photoshop\Ageing on your CD and locate the three files you'll need. These are for personal training purposes only, and not to be reproduced elsewhere. Expertise by Derek Lea, [e] derek@dereklea.com, [w] www.dereklea.com. *Photoshop 6* was used to create this tutorial.



ften photographers and digital artists are asked to improve upon the people they use in their images.

Cloning out wrinkles, smoothing porous skin and re-colouring grey hair is generally par for the course. More often than not, younger is better. Magazines and advertisements sell youth as beauty — our entire culture is obsessed with looking younger than we really are.

That is why it was a bit of a surprise for one of our leading illustrators, Derek Lea, when three separate commissions from three different clients asked for something similar: ageing. The first art director asked if it was possible to photograph a woman, and then age her 30 years or so. Of course the answer was yes. Anything is possible if you have the initiative and a working knowledge of *Photoshop*, and in this tutorial we're

sharing the secrets of how these briefs were met.

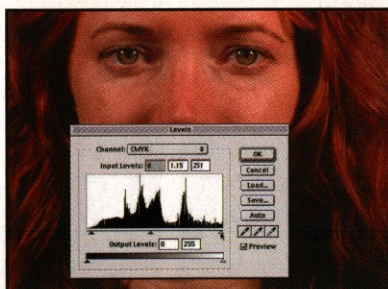
After the first image was completed, a strategy was developed in *Photoshop*. Using carefully planned photography, layers, masks, channels and a handful of other *Photoshop* features, the ageing process was greatly accelerated. A highly believable result can be achieved by following this method, and we've laid the process bare in 27 steps...

Part 1: Preparing the first two images

It's important to shoot the two subjects using similar lighting. You'll always have to tweak the scans to match up colour and accentuate the signs of age...

Preserve the structure

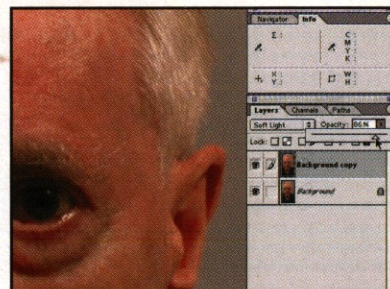
When working on ageing a face, it's important that it still looks like the same person when you've finished. A good rule of thumb is that soft areas of skin will sag with the effects of gravity. These are the areas to apply your ageing techniques; places like the bags under the eyes, jowls and so on. Leave basic bone structure alone as well as the shape of the nose and the position of the eyes. To age areas that will not sag, like the forehead and the bridge of the nose, add pores and subtle wrinkles to the skin but leave the basic shape of these areas untouched so that the structure of the person's face is still evident.



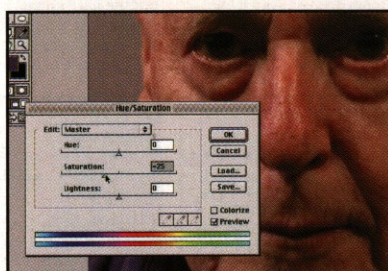
1 Open the file called woman.psd (on your CD in Tutorials\Pshopskills). This is the base photo for the face, so we'll need to do some basic colour corrections to get it looking good. First, make a new Levels adjustment layer and increase the contrast by darkening the darks and brightening the lights.



2 Create a Selective Colour adjustment layer, and add in some more black and cyan to the blacks to make them stronger in the image. Since her skin is looking a little saturated and red, create a Hue/Saturation adjustment layer and decrease the saturation by about 10.



3 Open the file named man.psd. What we want to do here is accentuate the wrinkles. To boost the contrast, make a duplicate of the background layer and change the Blending mode to Soft Light. Decrease the opacity of the layer slightly to lessen the effect.



4 A side effect of using the Soft Light layer is that the saturation of colour increases greatly. Create a Hue/Saturation adjustment layer and decrease the saturation by about 25 or so. This preserves the contrast created and removes the excess saturation from the image. Create a new layer with a Colour Blending mode.



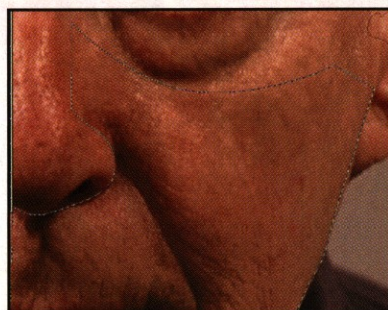
5 Reduce the opacity of the layer to around 60. With your windows arranged so that you can see the woman image, use the Eyedropper tool to sample colour from some of the areas of the woman's face. Use a large soft brush to paint with this colour on your new colour layer. This will help match the images and even-out the man's skintones.



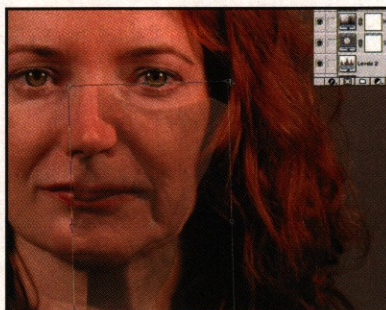
6 Flatten the man image if you are happy with it. Select Filter>Sharpen>Unsharp Mask. Set the amount to 130, the radius to 1 pixel and the threshold to 0 levels. This will add sharpness and definition to wrinkles and pores. Now use Image>Adjust>Selective Colour to remove some cyan and black from the neutrals.

Part 2: The mouth, neck, and cheeks

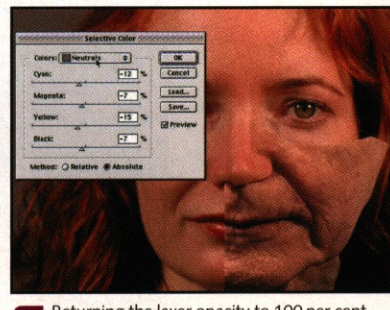
Here we start to add in the first signs of age around the lower section of the head. Remember, we are only doing half the face here, so you can see before and after...



1 Use the Pen tool to draw a path around the right half of the man's lower face and neck, but leave the nose out for now. Generate a selection from the path and copy (Command/Ctrl+C) the contents of the selection into the clipboard. Now, in woman.psd select the top-most layer and paste (Command/Ctrl+P).



2 Reduce the opacity of your new layer so that you can see through it. You will need to position the section of old face in the appropriate area. It's a little small, so use Free Transform (Command/Ctrl+T) to enlarge and reshape the section. You'll need to enlarge it a little more horizontally than vertically, and rotate it a little.



3 Returning the layer opacity to 100 per cent shows how much difference remains between the two different skin colours. Use Image>Adjust>Selective Colour to make the old skin match the new. Concentrate on the neutrals; you'll need to pull a little colour out of each channel, keep an eye on the changes. Add a little more black and magenta to the blacks here, too.

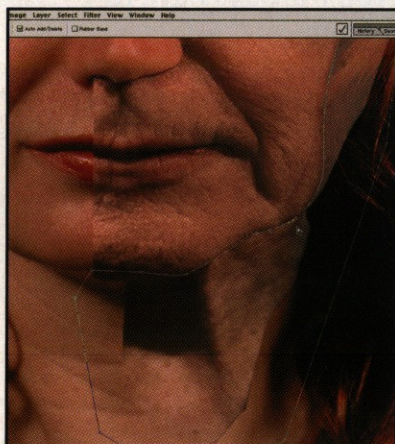
Part 2: The mouth, neck, and cheeks continued...

Photographing the faces

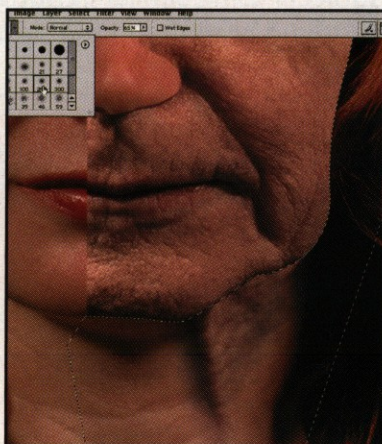
When shooting two or more people to use in a single image, use identical lighting situations and camera positioning. Leave the lights and camera set up if you can, because sometimes you won't be able to shoot all of the people at the same time. If you must move the camera and lights between shoots, measure distances and draw a diagram of the positions of your equipment. This can save a lot of time in Photoshop later, trying to match up two images with varying lighting situations. Also, using a grey background when shooting is helpful later on. After your images are scanned and you want to colour match them, look at the grey backgrounds and you'll see which way the hues are shifting from image to image.

Lighting techniques

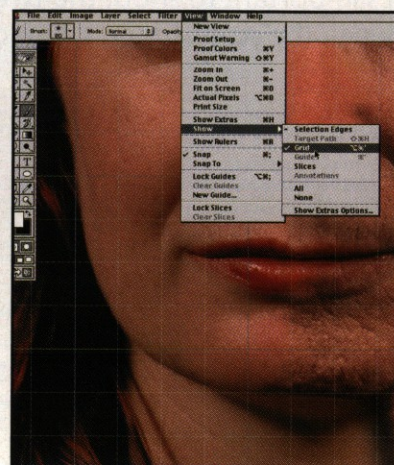
Ideally, when shooting the faces, you'll have a light on either side aimed at the subject on a 45 degree angle for an even light. Shoot the young person like this. When it's time to shoot the old person, leave the light position and distance the same, but raise the light sources up higher and aim then downward so that the lights are shining down on the face from above. This will help to increase the shadows that are created by wrinkles and bags under the eyes, defining these areas a little better.



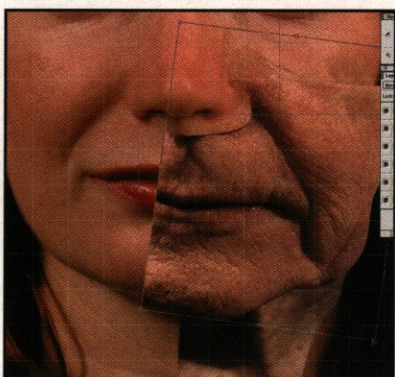
4 Save your selective colour settings, that way you can reload them when you bring in other sections of the face and use these settings as a starting point. Reduce the layer opacity again so you can see the underlying image and draw a path that follows along the old man's jaw line and surrounds the area to the right of the woman's face and neck.



5 Generate a selection from the path and return the layer opacity to 100 per cent. Choose Layer>Add Layer Mask>Reveal All and select the Paintbrush tool. Use a large soft brush with a low opacity setting and a fill of black to paint out hard-edged sections of the neck on the layer mask. Paint over the area to the right of the face in the selection.



6 Invert the selection (Command/Shift+I), and use the paintbrush on the layer mask to fade out the hard edges on the face. You will need to use smaller soft brushes in areas like the lips and around the nose. Be sure to soften the area which defines the right side of her jaw. Deselect (Command+D).



7 In order for this image to look realistic, things must match up perfectly. Choose view>Show>Grid to see how things line up. Notice how the right side of the jaw is sitting up a little higher than the left. The rest of the features match up well, so we aren't going to mess with this layer.



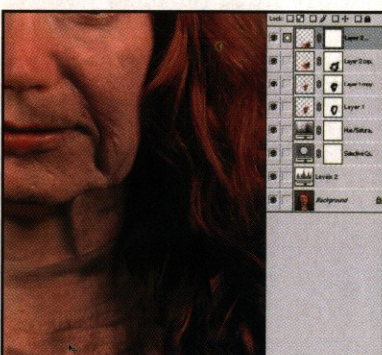
8 Duplicate the layer and disable the layer mask by shift-clicking on it. Use free-transform to move the layer down and rotate it about 7 degrees and shear it vertically about 3 degrees. When finished, click on the layer mask icon to enable it. Now paint with white on the lower right area only, to reveal it, and paint with black on all other areas, to hide them.



9 Hide the grid and open the file: neck.psd. Draw a rough selection around the neck area in the image using the Lasso tool. Hold down the command key, and drag and drop the contents of the selection into your working file as a new layer. Use free-transform to rotate, scale and position the section.



10 Change the blending mode of the layer to darken and reduce the opacity of the layer. Use Image>Adjust>Hue Saturation to decrease the saturation and remove some of the red. Use the cloning tool with "use all layers" deselected to pick up sections of the darker wrinkles and add them to the lacking areas of the neck.



11 Add a layer mask and paint with black, using a large soft brush on the layer, to soften the edges along the left and the bottom. Use a hard edged brush to paint out the areas which creep up above the lower jaw line and obscure the face. Duplicate this layer and drag the duplicate lower down the neck.



12 Use free-transform to rotate and increase the size of the layer. Since the layer already has a mask, use a brush with a white fill on the mask, to remove areas that are masked out that you want to expose. Again, use a brush with a fill of black to hide unwanted areas. Remember, the lower the opacity, the softer the effect.

Part 3: Eyes, nose, and forehead

Now let's concentrate on forehead wrinkles and pores, grey hair in the eyebrow and sagging skin around the eye; topping it off with pores on the surface of the nose...

Finding a model

You will have no problem finding a person to be your youthful model — everyone would like to think of themselves as a true representation of youth and beauty. Finding someone who is willing to model for the aged portion is the tricky part. First thing: wherever possible, use a man. The truth of the matter is that women are much more sensitive than men about looking old; it's hardly surprising. How many magazines are out there geared to women that are all about looks, exercise, fitness, fashion and make-up? Our culture preaches to women about the value of their looks, that youth is beautiful and age something to hide. Tell your model that you intend to lighten them in the least flattering way and that you are going to create stronger wrinkles with lights and digital techniques to make them look much older and weathered. That way, when they eventually see the exaggerated results, they won't feel so bad. Be understanding and polite — age is sensitive territory.



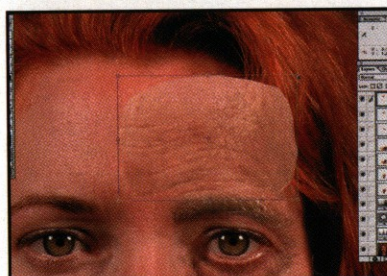
1 In the file man.psd, use the Pen tool to draw a path around the area underneath the man's eye. Generate a selection from the path, and either drag and drop or copy and paste the contents of the selection into your working file as a new layer. Position the section under the eye and use Free Transform to adjust the size.



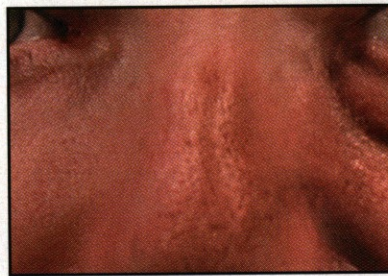
2 Use Selective Colour and load the settings that you saved previously to adjust the colour to match, tweaking it further if necessary. Add a layer mask and use a large soft brush on the mask with a Fill of black to mask out the areas on the left, right and bottom. Use a much smaller brush to carefully soften the area where the eyelid meets the eye.



3 Again in the file man.psd, draw a path around the area above the eye, including the eyebrow and a little of the area above it. Bring that part into the working file as a new layer and apply the same techniques: Selective Colour, Free Transform, and masking out hard edges.



4 Now, for forehead wrinkles, select a piece of the old man's forehead and bring it into your file as a new layer. Resize it, reposition it, and mask out the hard edges. Adjust the colour and reduce the opacity of the layer to 50 per cent. Next, duplicate this layer, increase the opacity to 100 per cent and change the Blending mode to Darken.



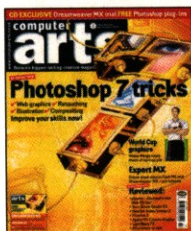
5 Repeat this process, but this time use a section of the old man's nose. We want to introduce some deep pores to age the nose. This method of stacking two of the same layers with different blending modes can effectively exaggerate cracks, wrinkles and pores in any area of the face, to increase the aged look.



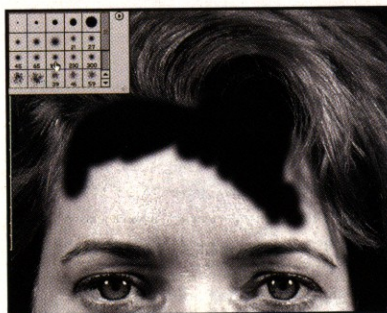
6 There will still be a few smooth areas here and there. Create a new layer on top of the others and choose the Rubber Stamp tool, making sure that Use All Layers is enabled. Select porous areas in the image as origin points, then clone these areas into the smooth parts of the face using varying brush sizes and opacity.

Part 4: Grey hair

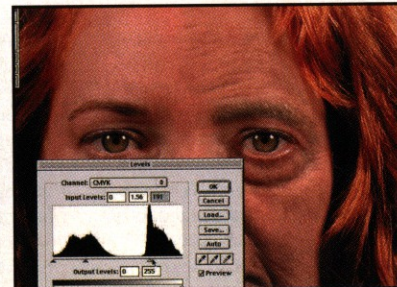
Premature grey has been taken to the extreme in the following steps. Pray that this doesn't happen to you...



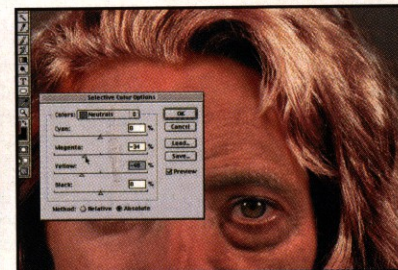
This tutorial on ageing was originally printed in issue 72 of Computer Arts, 2002. Every issue of Computer Arts and Computer Arts Special includes a selection of great creative software tutorials. Never miss an issue when you subscribe on page 46.



1 With the base layer active, Select All (Command/Ctrl+A) and Copy. Create a new channel in the Channels palette and paste the image into it. Use levels to increase the contrast of the channel. Now, using a number of different brushes with black fills, paint out all of the image except for the hair highlights.



2 When finished, Command/Ctrl-click the Channel icon to generate a selection from it. With this selection active, create a new Levels adjustment layer. Brighten the midtones and highlights considerably, and don't worry too much about the hue on this layer. Now load the selection from the channel again and this time create a Selective Colour layer.



3 Strip away yellow and magenta from almost every section except the blacks. Keep going until you think the hair looks light enough. There you have it: the art of premature ageing is at your disposal. At this point, feel free to dress up the other parts of the image with surface textures and different backgrounds as we've done in the opening illustration, or have some fun with the other side of her face. **CA**



Illustration: David Newton [e] david@davidnewton.com

Scanography

Push your scanner to its limits to create stunning hyper-real images. The secret? Scanographers do it upside down...



avid Newton is a man who knows how to scan. You'll find the proof at [w] www.davidnewton.com,

where you can view an array of sharp-edged graphic images that resemble photographs more than illustrations — all created using a scanner and a copy of *Photoshop*. Scanography describes images that possess elements of both photography and illustration, and yet do not sit easily in either category.

Most people who own a copy of *Photoshop* and a scanner have, out of curiosity, progressed beyond scanning pieces of paper and transparencies. Who hasn't placed their hand on the glass to see what happened, or used any object that happened to be nearby? Well if you haven't, you should have! By

using your imagination, it's possible to produce images from your scanner that go far beyond what the machine was originally intended to do.

In this case, we want to create a hyper-real image of a bird of paradise flower, with hard edges and luminous colours. It will look photographic in that it's a representation of the 'real' world, but with digital manipulation — exaggerated shapes, colours and edges — to create an almost heightened sense of reality, this snapshot of everyday life will possess elements of illustration.

Photoshop is a vital tool here, but the type of scanner isn't really that important. You can achieve great results from even the most basic equipment — it's not what you've got but the way that you use it...



On the CD

Scanography and expertise provided by David Newton: [e] david@davidnewton.com, [w] www.davidnewton.com. The four original scans used to create this image can be found on your CD in the folder Tutorial\Photoshop\Scanography. These are for personal use only, and are not to be reproduced elsewhere.

Part 1: Preparation and scanning

First we carefully scan the flower. There are things we can do along the way to enhance the image, but getting a quality original scan will save time...

Doing it upside down

This is a big issue in scanography. Turning your scanner upside down means that the lens and light are now above the object being scanned, not below them as usual. There are many plus points to doing this. You can scan objects such as droplets of water without them falling onto the glass, or achieve a more realistic impression of a pile of objects (berries, powder, a metal chain for example) instead of that flattened 'underside' look you get otherwise. But (and it's a big but), your scanner may not like being flipped over onto its back – you need to decide if it's worth the risk. The choice is yours!



1 The flower we are going to use is perfect for this technique, because it has a smooth, waxy surface. This means that water droplets cling to it, even if it's upside down. This very preliminary scan shows what the flower looks like in its raw state. It's striking, but it could look even more interesting...



2 Enhance the flower by cleaning it, then coating it with a light film of olive oil. Wipe off most of the oil, then sprinkle water droplets onto the flower. This scan shows the basic impression from turning the scanner upside down and holding the base (now the lid) away from the flower with a book. This stops the glass from touching the water and squashing all the droplets into pools on the flower's surface.



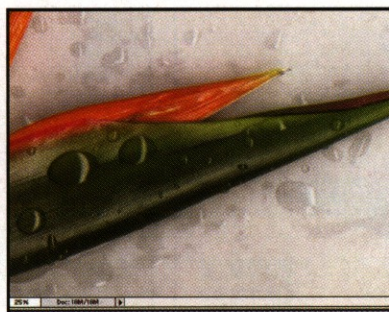
3 Photoshop means that you don't have to capture a whole scan – you can preview the image in your scanning software, scan the best-looking bits and join them all up. Scan at a high resolution, giving you a good close-up. This flower is already a good size, so it was scanned at 600dpi. Here we've just scanned the stalk. Notice how the water has spread at the top...

Getting a good scan

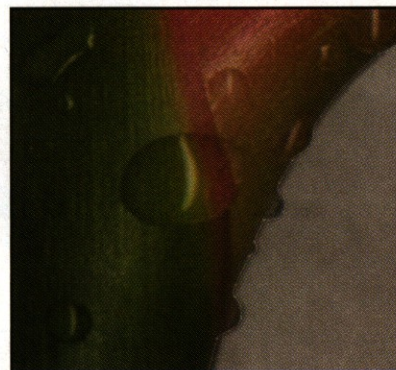
Another good reason to have the scanner upside down is so you can have the object sitting on a piece of white paper. When scanning 'normally', you can often lay an object face down on the glass and then put a sheet of paper over it to achieve the white background, but in this case it would be difficult if we were also trying to keep the flower millimetres away from the glass to prevent the water droplets breaking. Having paper covering everything over would prove extremely fiddly.



4 If you like, you can remove the flower from the scanner, clean it up, re-apply oil and water, then do another scan. There's a lot of trial and error in this. You'll have to get the hang of how to get the lens as close as possible to the surface of the object without the glass touching it. Here we have another scan of that part of the stalk where the water had spread – it now looks fine, so we'll join this onto the previous scan.



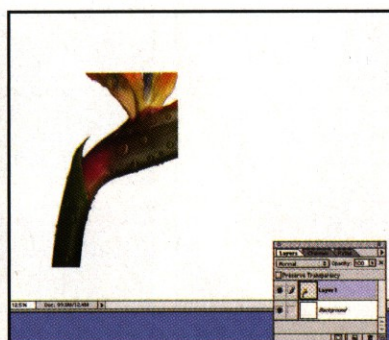
5 Keep scanning. Another reason to scan in segments, is that while one part of the object may be in focus, another part may not. In picture 2, the main body of the flower is in focus, but the stalk is receding. This is easy to rectify. Either change the object you're using to keep the heavy base of the scanner away from the lid, or slide the book (or similar) you're using nearer or further away from the hinge. This affects how much the scanner can close.



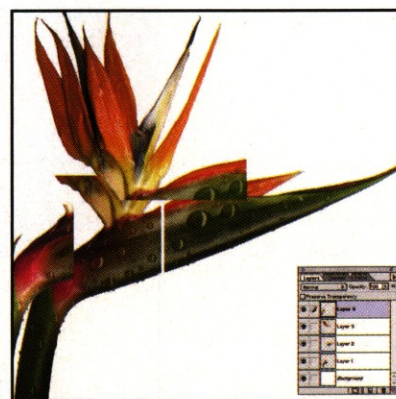
6 Once you've done all the scans you're going to need, it's time to get them all onto the same blank page. You could drag the whole scans onto the page, but it's better to cut each flower out from its background first. Use the Pen tool for a sharp line, zoom in and start drawing around the edges.



7 It's best to draw very slightly inside the edge of the stalk/droplets. They will be a bit blurred, and doing this will give the optical illusion that all the edges are sharply in focus. It shouldn't work, but it does!



8 Convert the path to a selection by dragging it in the Paths dialog box to the dotted circle icon. Then drag the selection onto a new file. Give yourself lots of space to play with. This new file is at 300dpi (standard res for print reproduction). The flower will appear twice as large as life, as it was scanned at 600dpi. The new file has therefore been created with dimensions of 50x50cm.



9 Repeat the process of path-creating and dragging onto the new file until all the elements you think you'll need are there. Now you're ready to stick everything together and enhance the quality of the image.

Part 2: Constructing and correcting the flower

The scans still look quite rough and ready, and are lacking the perfect, hyper-real quality we want. Let's put all the sections together and use some trickery...

The things that scanners love

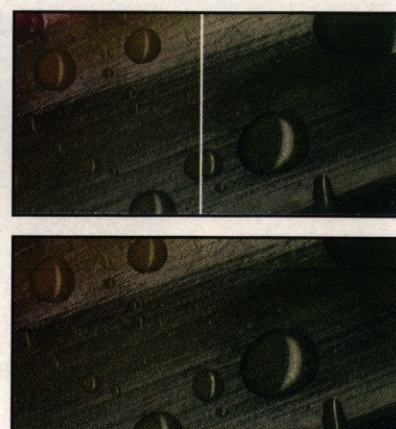
Scanners seem to love shiny objects – but not just any shiny object. They produce bizarre results if faced with anything mirrored. What they do take to, are: fish scales, pieces of technology made from brushed steel, oily flowers, jewellery, sliced fruit, drops of coloured liquid such as blood and so on. They also work well on anything that sits good and flat against the glass, as opposed to round objects such as apples or tomatoes.



1 Zoom right in and put the first piece into place. This can be an exact overlap of the adjoining piece, or you may decide that it'd make the picture look better if the stalk were at a different angle. This image shows the two pieces lined up exactly.



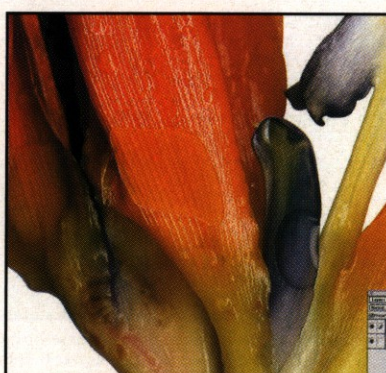
2 The next step, if you have aligned the two pieces, is to erase part of the top layer with a diffuse airbrush. In this case, we want to get rid of that patch of 'squashed' water.



3 You can see in these two images show that all that was needed here was to place one section over the other, creating a seamless join.



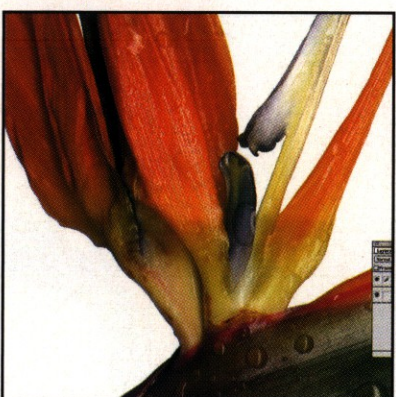
4 The completed jigsaw should look something like this. If you're happy with the way it looks, merge the layers together and click Preserve Transparency in the Layers dialog box. This means that if there is any more work to be done on the structure of the image (and there is!), you'll be working within the current edges of the flower and not spilling over into surrounding areas.



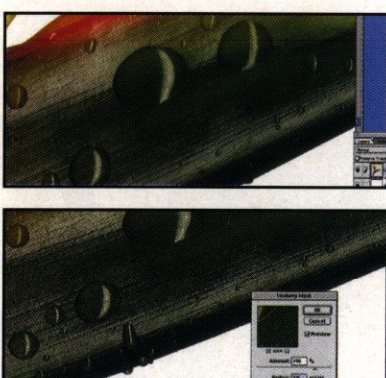
5 Only one scan was made of the orange petals of this flower. It's become apparent that there's a patch of 'squashed' water on one. In this case it won't be possible to just erase the top layer to reveal an area of perfect droplets underneath, as in step 11, so a bit of cloning will be required.



6 You could use the Clone tool for this part, but it's probably better to actually cut out a segment of the petal and create a new layer for it (Select area, then Command+J). The segment has been moved across here to show which part has been duplicated.



7 Tilt the segment slightly, lay it over the offending area and change its hue subtly to fit in with the colour of the area it has been placed over. Erase softly around its edges to blend it in with the underlying area.



8 Use the Unsharp Mask filter to sharpen edges up and give the clarity that we're looking for. The thing to remember all along, is that we are after stunning, pin-sharp accuracy and an almost heightened sense of reality. This means slightly exaggerating shapes, colours, edges and so on.



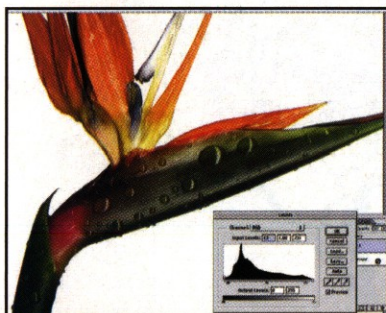
9 With this in mind, take regular looks at the object you are working on and decide whether certain parts aren't working. This darker petal is a bit ugly and doesn't really add to the overall beauty of the picture, so you may want to remove it.

Part 3: Keeping it hyper-real

Time to add the final dramatic touches. A few basic steps will pull it all together and push the image into the realm of classic scanography...

Surreal scanning

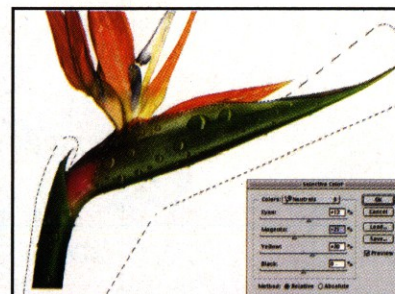
A great thing about scanography is that you can not only create images that are hyper-real, but also ones that are totally surreal. When objects are portrayed in such an in-your-face realistic way, it can often be far more arresting to go all weird with them, but giving your image an overly 'arty' and computer-generated look. For instance, most sci-fi images may look great, but they rarely make you exclaim about how realistic they look. Taking this flower as a starting point, how about cutting it across the stalk to expose flesh? Or having insects crawling all over it, but scaled down to make the flower look colossal? Or the petals being pulled off one by one by a lobster's claw? If all the elements involved look unmistakably real (and indeed were), the impact can be fantastic.



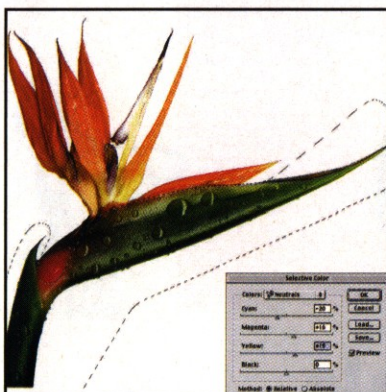
1 Altering Levels is a great way of making an image look more dramatic. It gets rid of boring mid-tones in a picture and amplifies the light and dark areas, creating exciting contrasts of tone. As we are constantly keeping in mind the need to heighten the graphic impact of the picture, this is a vital procedure. Drag the two end sliders in the Levels dialog box inwards slightly until you like the effect.



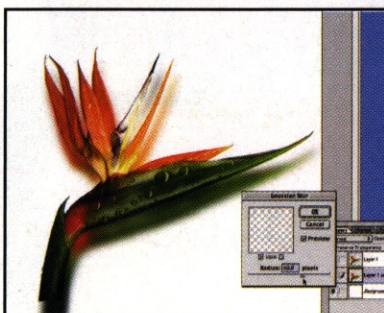
2 Next we want to alter the colours slightly to really bring out and even exaggerate the flower's natural colours. Using the Lasso tool with a feather value of 100 (this softens its edges), draw around the areas of the flower with most green in them. By isolating certain areas we'll be able to more accurately control how the image is re-coloured.



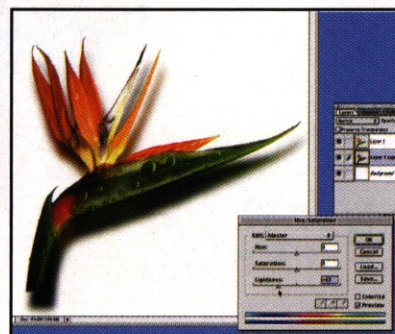
3 Open the Selective Colour dialog box (Image>Adjust>Selective>Colour) and select the Neutrals option. To alter colours subtly it's best to change any colour in the image that could be described as neutral (all the 'weaker'-coloured pixels that can stop a 'stronger' colour in the same area really achieving its full impact). By upping the Cyan and Yellow amounts and reducing the Magenta in this green area, the flower suddenly begins to look far more fresh.



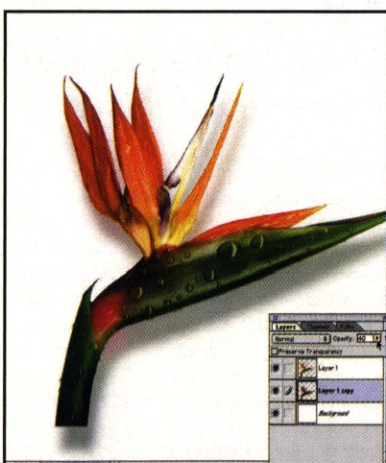
4 Invert the area selected and call up Selective Colour again to deal with all the red/orange areas. Choose Neutrals, and this time decrease Cyan and increase Magenta and Yellow to give a great 'zingy' petal colour.



5 To create an interesting shadow, duplicate the flower layer, move it down and right slightly, then apply a Gaussian blur of 60. Shadows are great for scanography: they give the image a 3D quality, and help counteract the light-direction problem that dogs scanography – namely that the light source is always directly in front of the object. Creating a shadow like this makes the brain think that the light source is to one side. A more pleasing impression.



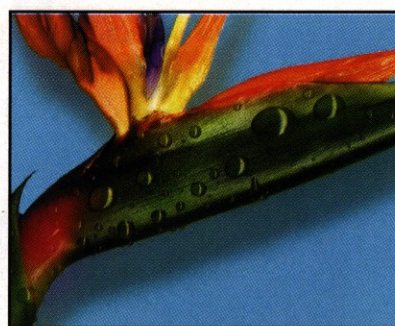
6 Darken the shadow using Hue/Saturation. This shadow is a lot more interesting than the ones that are usually created beneath objects (by duplicating the image, filling it with black and then blurring and reducing its opacity) because it still contains colour. It imitates the effect often seen in real life when an object's colours are reflected by a bright light onto the surfaces around them.



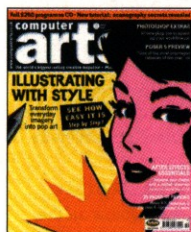
7 Now lighten the shadow by reducing its opacity to around 40 per cent.



8 To enhance the slightly hyper-real quality, change the background colour to a vivid, complementary colour that offsets the flower.



9 Because we've scanned at a good resolution, we can zoom into just part of the image. This works well with more graphic shapes that have an inherent excitement within them, like this bird of paradise flower. Its shape is already well known, and a more exciting picture can be achieved by cropping it. Create a new, smaller picture file and drag the flower and its shadow onto it, then move them around to find your ideal image.



This tutorial on scanography was originally printed in issue 75 of Computer Arts, 2002. Every issue of Computer Arts and Computer Arts Special is full of essential techniques, tips and tricks that can be applied to digital art and design. Never miss an issue by subscribing on page 46.



Using fractals in Photoshop

The geometry of fractals is simple and complex, powerful and subtle. Here's how to put them to use in your *Photoshop* art...



Text and images supplied by Milos Rankovic, who developed the method for generating fractals in *Photoshop* outlined in the tutorial. Milos is a research student at the University of Leeds.
[w] www.leeds.ac.uk/~fine_art/milos, [e] finmr@leeds.ac.uk



Files on disc
The files used in this tutorial can be found on the CD in the folder named Tutorial\Photoshop\Fractals.

With applications as complex as *Photoshop*, artists will always be able to achieve things undreamt of by the software architects themselves, which is perhaps the measure of their success. One such thing is the method used here.

We will use *Photoshop's* Clipboard, layers, actions and Transform commands to organise hundreds or thousands of copies of one initial image into intricately structured organic patterns and spatial arrangements. This can all be done in minutes.

The emphasis here is on geometry, not fractals themselves, which you can get for free and are widely available. You can use as many fractals as you like, but none of them would help you come up with the tree or the cloud in the illustration above. This is because none of them grew in response to your needs.

The essence of fractal growth is stretch and fold, which basically means the iteration of an algorithm (a set of prescribed transformations or changes) to the outcome of the previous iteration, starting with absolutely anything. This

is exactly what you can achieve by carefully programming Adobe *Photoshop's* actions and playing them a number of times on some purposefully chosen object.

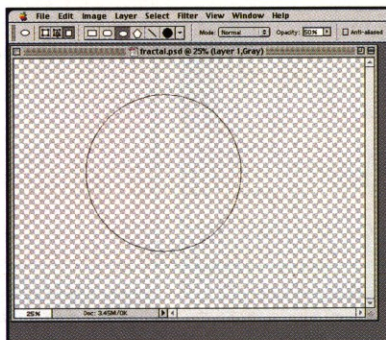
If you are a keen *Photoshop* user, you will probably already know all the commands and features of the software. In this tutorial, we will show you how to put them together into a fractal-generating methodology, as well as how to integrate it into your practice until it's hard to tell where the fractal ends and the artistic intervention begins.

Part 1: Setting up

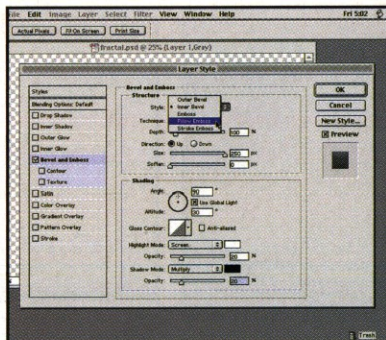
Start by drawing a bubble and planting the cloud...

Units & Rulers

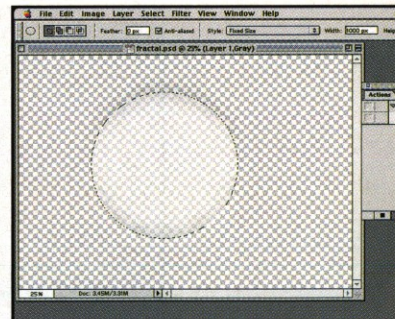
Before recording an action, go to **Edit>Preferences>Units & Rulers** and for **Rulers** select pixels, not per cent. When units of measurement are set to per cent, transformations in *Photoshop* become sensitive to the size and aspect ratio of the document. What you need here are transformations that are only relative to the size and shape of the object.



1 Create a transparent greyscale document that is 19.2cm wide and 13.5cm high with 300 pixels per inch resolution. Roughly in the middle, draw a semi-transparent white circle that is 1000 pixels in diameter – use the Ellipse tool with Fixed Size and 50 per cent opacity set in the Options bar.



2 Go to **Layer>Layer Style>Bevel and Emboss** to customise your creation. Choose **Pillow Emboss** style, set the size of bevel to 250 pixels, set the angle of light source to 90 degrees and set the opacity of both highlight and shadow to 20 per cent. Apply the effect.



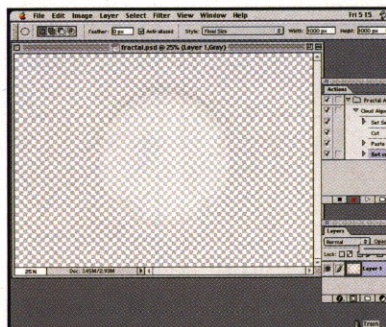
3 Choose **Layer>Layer Style>Create Layers** followed by **Layer>Merge Visible**. Then choose **New Action** from the Actions palette pop-up menu. For further reference, give it the name 'Cloud Algorithm'. Click **Record**. Obviously, as you are now recording what is essentially an algorithm, the precise order of the following operations is essential.

Part 2: Recording an action to use as a fractal algorithm

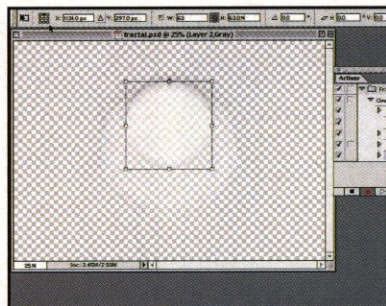
Create three transformed copies of the bubble, and three more copies of each daughter bubble...

Avoid translation

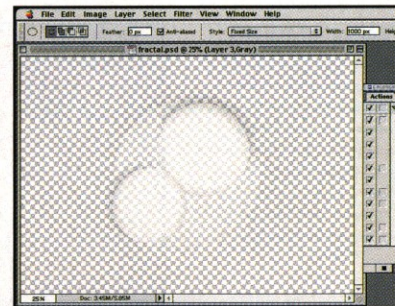
To be able to apply the same action to objects of different sizes, do not translate layers by dragging the bounding rectangle during transformations. Also, avoid cumulative transformations that *Photoshop* summarises using translation. Instead, strategically use the centre point to move the object while scaling or rotating it. This is because, in *Photoshop*, translation is relative to the size of the document and not to the object under transformation.



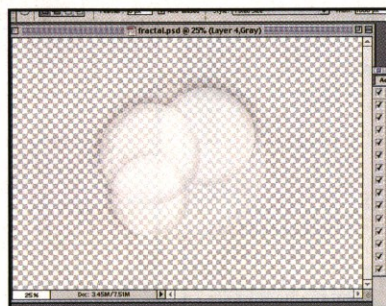
1 Choose **Select>All**, then **Edit>Cut** and **Edit>Paste**, making sure that no part of the document is hidden from view because the Paste command always centres on the currently visible area. In the Layer palette, set Layer Opacity to 50 per cent. Now perform another **Edit>Paste** action.



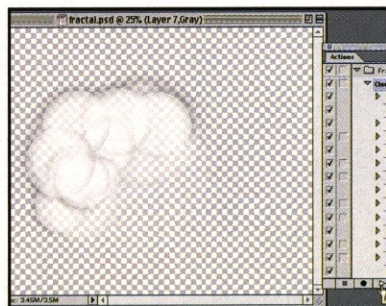
2 Choose **Edit>Transform>Scale** with the centre or reference point location set over the top side handle (not the corner handle). Set scaling ratio to 63x63 per cent numerically. Press the Enter or Return key. Now perform **Edit>Transform>Rotate** with the centre point set over the bottom side handle. Set Rotation Angle to 21 degrees.



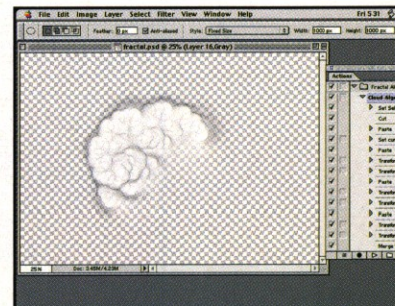
3 Choose **Edit>Paste**. Then go to **Edit>Transform>Scale** again, setting the horizontal scale to -51 per cent and the vertical scale to 51 per cent, leaving the centre point in the centre. Press Enter or Return. Now perform **Edit>Transform>Rotate** with the centre point set over the bottom side handle. Set the rotation angle to -79 degrees.



4 Choose **Edit>Paste** and record the final two transformations. Set the centre point over the top side handle and scale down to 65x65 per cent. Then perform **Edit>Transform>Rotate**. Set the centre point over the bottom side handle and rotate by -51 degrees. Do not combine any of these transformations into cumulative transformations.



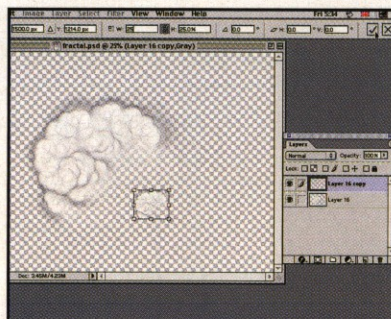
5 Choose **Layer>Merge Visible** and then stop recording the action. Now *Photoshop* does the work for you. Click the action's name (Cloud Algorithm) in the Actions palette to select it and click the Play button. Play the action four times. This is how the cloud looks after playing the action once.



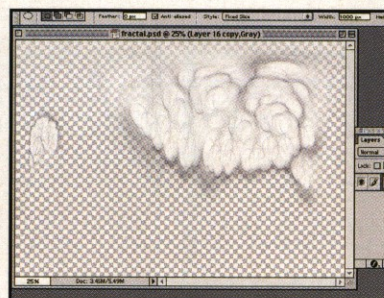
6 This is the result. Playing the action further would generate ever more detail until all traces of the initial circle are lost, and the image becomes very complex and intricate. You can try this by creating a duplicate of this document and running the action on it again and again.

Part 3: Creating the cloudy sky

Turn the brain-like shape into a cloud using Polar Co-ordinates...



1 Choose Layer>Duplicate Layer. Then scale the new layer down to 25 per cent with the centre point set over the bottom-right corner handle. This creates another small cloud. Go to Layers menu again and choose Merge Visible. There are still a couple of steps to complete the cloud.



2 Go to the Image>Rotate Canvas sub-menu and choose 180 degrees (rotate the canvas, not the layer). Finally, to create the cloudy sky like in the opening illustration, go to Filter>Distort>Polar Co-ordinates and choose the Polar to Rectangular option. Scale the layer up by 117 per cent for better compositional arrangement.



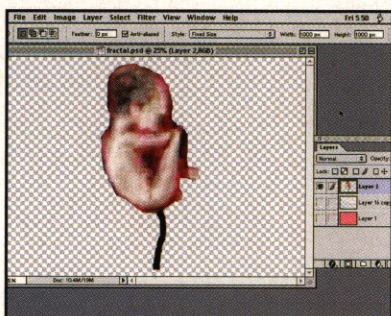
3 Convert the document to RGB colour. Create a new layer with colour (try Pampers pink, for example). To make the tree, you now need to hide these two layers by clicking the eye icons in the Layers palette.

Part 4: Modifying the action so that it grows trees

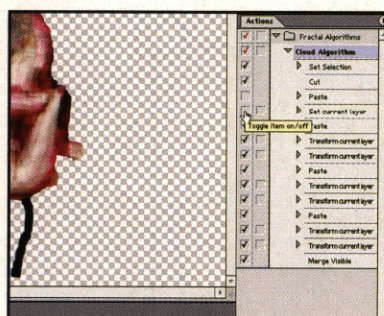
Turn two existing commands off and, working with the 'baby-bud', add four more items to the action's list of commands for a subtle shadow effect...

Managing actions

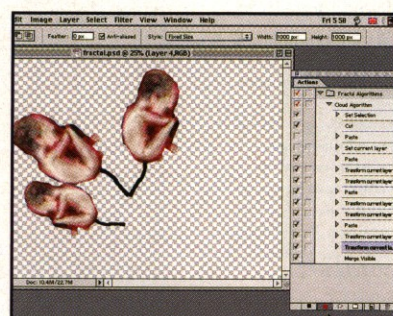
A single Photoshop action can store several different fractal algorithms. You can switch between them by excluding or including individual commands from being played back. Simply toggle items on and off by clicking the check mark next to the command in the list (as in step 2 of Part 4).



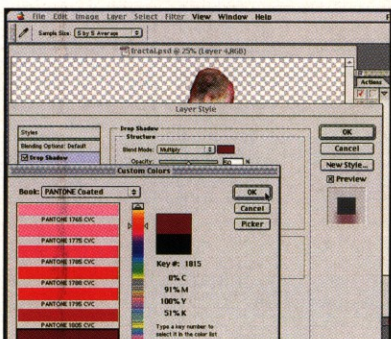
1 Copy and paste the baby.psd image, which is in the Tutorial\Fractals folder on the cover CD. Note that any other object on a stalk would work just as well. After finishing this tutorial you can try and 'grow' another 'tree' starting from a different 'seed'. Choose Layer>Arrange>Bring to Front.



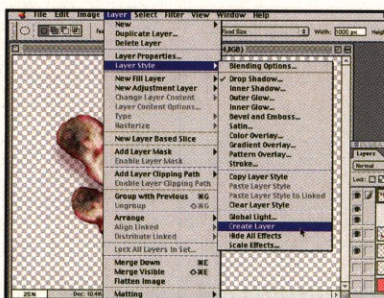
2 In the action Cloud Algorithm, expand (if collapsed) the listing of commands by clicking the triangle to the left of the action. Now, exclude Paste and Set Current Layer commands from being played by clicking the check mark to the left of the third and fourth item in the list.



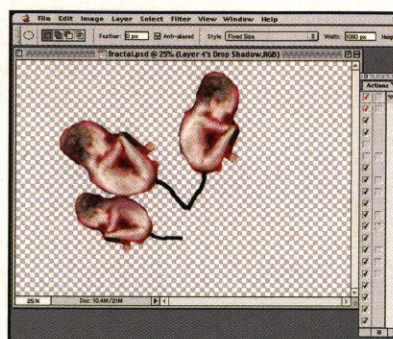
3 Now that it's modified, play the action once and then choose Edit>Undo Merge Visible. Go back to the action's list of commands and select the second command from the bottom (it is the last Transform, just before Merge Visible). Now start recording to add more commands to the action.



4 Go to Layer>Layer Style>Drop Shadow and set opacity to 50 per cent, angle to 90 degrees, distance to 100 pixels and size to 50 pixels. Click the colour box and choose a darker relative of the sky's colour from step 3 in Part 3. Click OK twice.



5 Choose Layer>Layer Style>Create Layer. Now press Alt+I (Windows) or Option+I (Mac OS). The shortcut records a Select Backward Layer command that you just created. This makes the Drop Shadow layer active, and it is right below the currently active topmost layer. Do not click on the Drop Shadow layer to activate it.



6 Choose Layer>Group with Previous. This limits the visibility of the drop shadow to non-transparent pixels of the layer immediately below. Stop recording the action. Go to the Layer menu and choose Merge Visible.

Part 5: Drawing a fractal with the Pencil tool

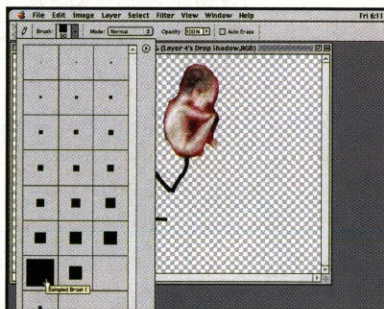
By drawing in step with playing the action, integrate your hand drawing seamlessly into the fractal structure of the tree...

Cloud Algorithm

Using the same Cloud Algorithm action, as modified in Part 4, you can now 'grow' a different tree within ten minutes that is just as intricate. Perhaps it could be a tree with money growing on it. Or matches. Or little Tarzans, solar cells, light bulbs... Or even leaves!

Cover CD

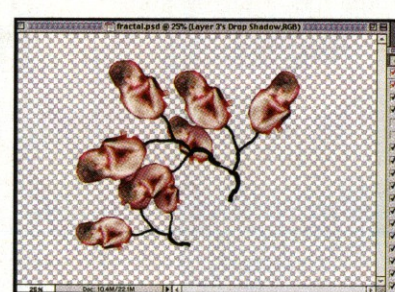
In the Tutorial\Photoshop\Fractals folder on the CD, you'll find the three actions mentioned in the tutorial: Cloud Algorithm, Tree Algorithm (same as Cloud Algorithm, only with different commands activated in the Command list) and TreeTrunk Algorithm. They can help you explore this method further.



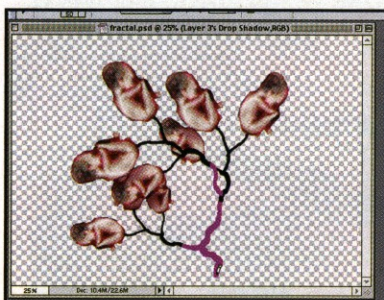
1 For the hard-edged look of the drawing in the opening illustration, choose the Pencil tool and keep the Anti-aliased option off for the painting brush you use. Alternatively, you could use a customised brush. The exact quality of the strokes, however, is not essential for this tutorial.



2 Draw a twig that connects the loose ends of the baby-buds' stalks by roughly following the example above. Observe that the twig never reaches the bottom edge of the document, although it comes close to it. The colour of the twig above is chosen for the clarity of the example.



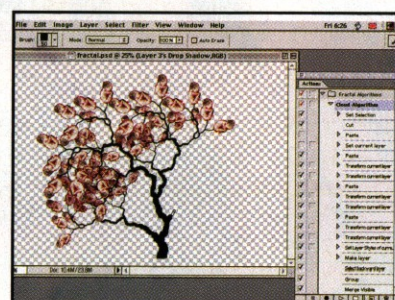
3 It is now Photoshop's turn to draw. In the Actions palette, select and play the Cloud Algorithm action once. Notice that every time you play the action (iterate the algorithm) three times as many babies are generated. Be careful, though, because if you iterate the action ten times you will end up with 54,049 babies!



4 Again, using the Pencil tool, connect the loose ends of the three twigs into a 'branch' (see above). Then, guided by the same principle, repeat playing the action and drawing a branch another three times. You should keep checking that you always have a clear view of the entire document.



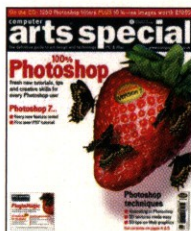
5 This is the third iteration. Obviously, the essence of this algorithm/action is the following pattern: Select>All and Cut, then Paste>Transform>Paste>Transform... (any number of these), then you should end with Merge Visible. You can also add any of the various effects (as in steps 4-6 in Part 4).



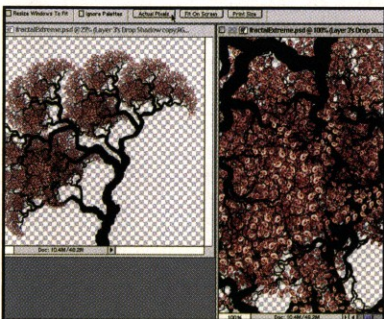
6 This is the fourth iteration. Only one more to go for the tree from the opening illustration. Also note that by changing the settings and order of the Paste>Transform units, an infinite number of substantially different shapes, patterns and textures can be generated – all remarkably intricate.

Part 6: Things to explore

What happens if you go beyond the parameters of the opening illustration?



This tutorial on fractals was originally printed in issue 30 of Computer Arts Special, 2002. Computer Arts and Computer Arts Special tutorials cover the latest creative techniques. Never miss an issue – turn to page 46.



1 On a duplicate document you can go to the extreme and play the action as many times as you like. This increases the number of copies of the initial image exponentially, while reducing their size until all the individual 'buds' get drowned in the emerging, often visually attractive, structure. This is the tenth iteration.



2 It is relatively straightforward to record the action that would generate the tree trunk as well, like in the example above. The theme of this tutorial, however, is not fractals themselves, but ways of integrating fractal geometry in everyday creative practice in an intimate and playful manner.



3 After the fifth iteration, make all the layers in the document visible by dragging through the eye column in the Layers palette, starting from the bottom up. According to taste, you can also add some density and depth to the tree by superimposing two successive iterations.



The scanner lab

Photoshop can be an integral part of creating a digital masterpiece, but when used in conjunction with a scanner, you can compose some truly amazing effects...



Files on disc

Take a look at the final result on the CD in the folder Tutorial\Photoshop\Scanner Lab.



Illustration and expertise provided by Vincent Marcone. You can contact Vincent at [e] vincent@mypetskeleton.com or you can visit his Website at [w] www.mypetskeleton.com.

Any *Photoshop* artist should continually be searching for new approaches in digital media. It is simply not enough to rely on a working knowledge of digital shortcuts and clever filters. There has to be something more for the artist to stand out and shine. The key to this is experimentation, coupled with the desire to craft imagery using original and unique methods.

In this tutorial you will learn to appreciate the potential of your scanner. Quite simply, you will create a series of

odd textures to incorporate into your imagery by completing a series of very odd but enjoyable experiments. You will start your own collection of original textures by completing these exercises, plus there is a variety of new processes that will open your eyes into your own ideas of scanner manipulation.

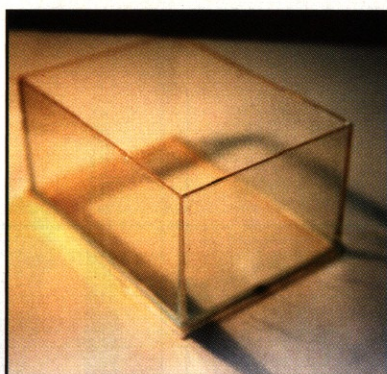
The key to this tutorial is that no one will have the same results by the time every step has been completed. By completing this tutorial, you will have a set of unique finger-printed textures that will be your very own.

Part 1: Droplets of colour

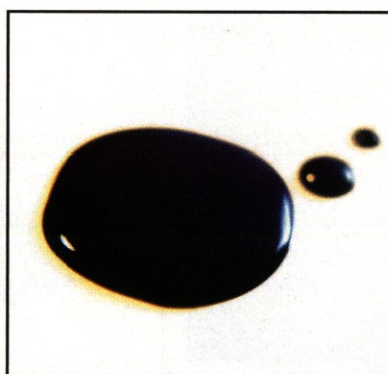
Mixing colours within a shallow pool of water can offer you a collection of unique and beautiful textures, which can only be achieved with this type of wet media...

Shallow pool of ink

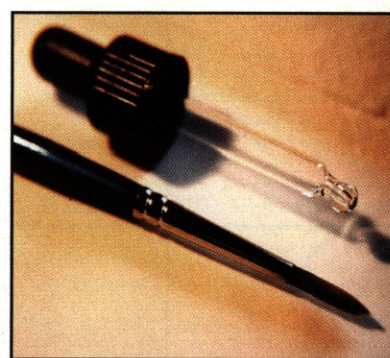
Once you've completed the experiment of dropping paints into water, you will have the job of cleaning your container. But before you do so, after having dumped the water from the container, you will notice a good deal of residue at the bottom. This residue is an interesting texture in its own right. Place the empty container back onto the scanner and take a high resolution image. You never now when it may come in handy.



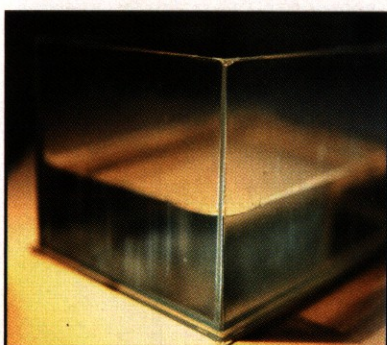
1 You will need a clear container that has a bottom surface area that does not exceed that of your scanner. A casserole dish will work or perhaps a shallow glass bowl. In this case, we will be using a small plastic box. Your container should not be too heavy as it may damage your scanner.



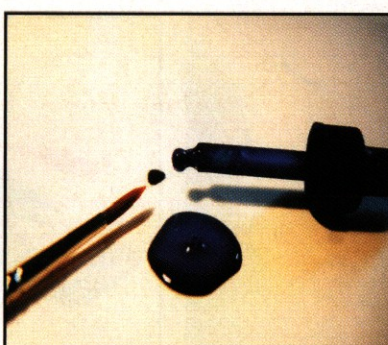
2 You will also need some type of water-soluble pigment. Water colour paints work very well for this, but there are also water-based inks that can be just as effective. Whatever you decide to use, it should mix well with water. You should also have a dish on-hand to mix your paints in.



3 An eye dropper or paint brush is required to add the droplets of pigment into your container of water. The dropper will enable you to have more control than a paint brush. A paint brush is good to have on-hand regardless, since it works well for mixing and manipulating colour. Keep a supply of paper towels with you in case of spillage.



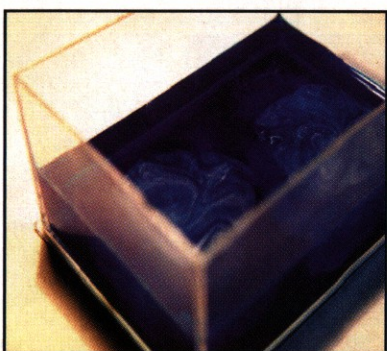
4 Fill up your container with no more than 3cm of water, remove the scanner's lid and gently place the container over the scanner. Remember that your scanner is not a waterproof appliance, so you should make sure that you are extremely careful when placing it onto its surface.



5 In a separate dish, mix your two desired paint colours with water. Make sure the mixture is completely saturated with paint. The more saturated your droplets of paint are, the more likely they are to sink to the bottom and create a pattern of residue. Use contrasting colours for a better effect.



6 Next, take one of the colours and create a series of droplets that fall next to each other. Do this until a good portion of the bottom of the container is covered with colour. Be careful not to cover the entire bottom. Allow the paint to settle for approximately ten minutes.



7 Once the bottom layer of paint has settled, drop portions of your new colour into the mix. The residue from the saturated paint will sink to the bottom and interfere with the initial colour. You'll notice that the momentum of the droplets creates a pattern as they fall. This pattern, along with the contrast of your paint colours, will give you spectacular results.



8 You're ready to scan! The objective now is to have the scanner light bounce off of the pigment within your saturated solution. To do this, turn off all the lights in the room, keep everything as dim as possible – you may have to do this at night if your scanner is located near a window. Always scan at a very high resolution so that all of the components of the texture are available to you.



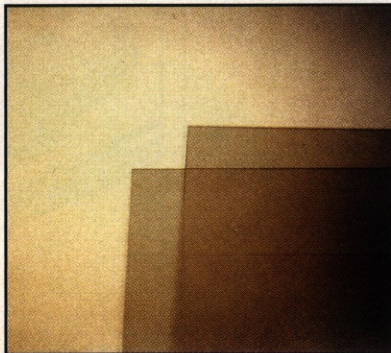
9 This texture was copied four times over the image, where each copy was switched to Soft Light within the Layers palette. By doing this the subtle contrast of the colours appear in the dark wings of the beetle. ➤

Part 2: Pools of colour

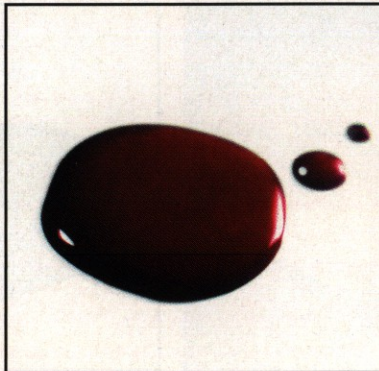
Manipulating the process of diffusion within a small puddle of water with just a few well-placed paint blobs. A simple process, yet effective nonetheless...

Squeaky clean

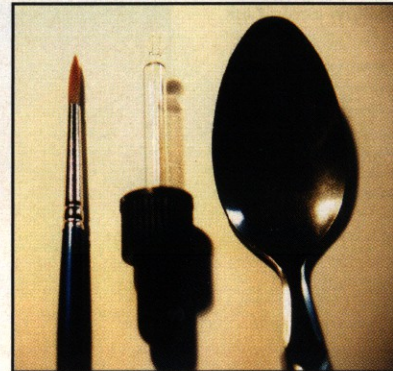
It's important to make sure your scanner is squeaky clean before beginning an experiment. There is nothing more frustrating than discovering you've put together the perfect texture within your wet media, only to find annoying dust particles that interfere with the overall effect. A clean damp rag is all you need to start off with a crystal clean slate.



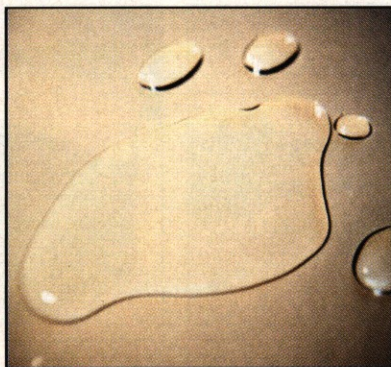
1 You will need a clear plastic sheet to place over the glass surface of your scanner. A print/photocopying shop should be able to provide you with a variety of options. The plastic sheets that they use for binding covers are the best and cheapest option, but acetate and clear velum will also work equally well.



2 Again, you will need paint or ink that is water soluble. Water colour paints work very well for this particular method, particularly the ones that come in a tube. They are less messy, and they saturate very well in water. Keep paper towels handy in case of spillage.



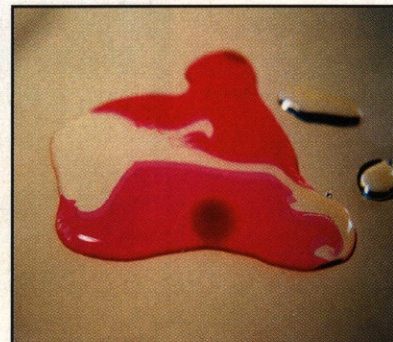
3 Finally, you will need a spoon to displace the water across your plastic sheet. A paint brush is also imperative for this method. An eyedropper can come in handy as well. You should also have a dish on-hand to mix your paints in. Note that the colours may look different on your computer screen.



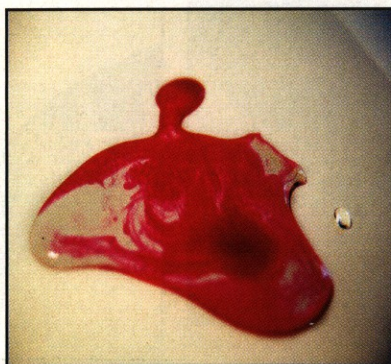
4 Remove the lid of your scanner and place the clear plastic sheet over its glass surface. Carefully place water onto the sheet with your spoon. Try to create one large blob of water in the centre of the sheet, with several smaller blobs surrounding the larger one.



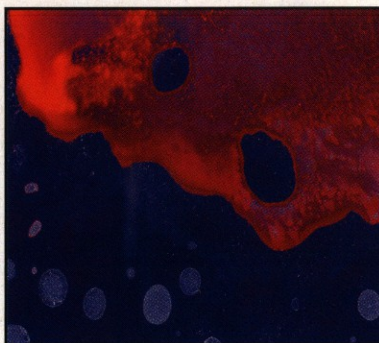
5 In a separate dish, mix your paint so that it is very rich with colour. The mixed paint should be at a point of super saturation, which means that there is a good deal of residue to stretch and diffuse into the surrounding puddles of clear water.



6 Using either your eyedropper or paint brush, add a drop of paint into the main puddle of water. Let it settle and diffuse on its own for a few moments. Once settled, take your clean paint brush (don't use one that's paint-soaked) and pull parts of the paint into the surrounding clear water. Try to pull out strings of colour into the puddle.



7 Repeat the previous step several times until you are happy with the way the paint is working with the water. Make sure you have a good deal of contrast in your blobs. There should be areas of rich colour and areas of translucent colour. Scan the image in dim lighting at a high resolution.



8 Carefully remove the acetate sheet from your scanner, making sure not to spill any water onto your machine. Place the sheet in a place where it has the opportunity to dry. It will probably take about 24 hours to completely evaporate, but the end result is very impressive. When it is dry, scan the image at a high resolution.



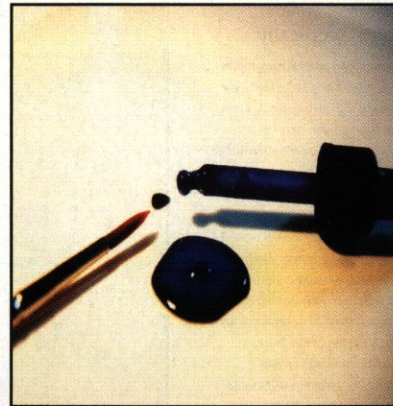
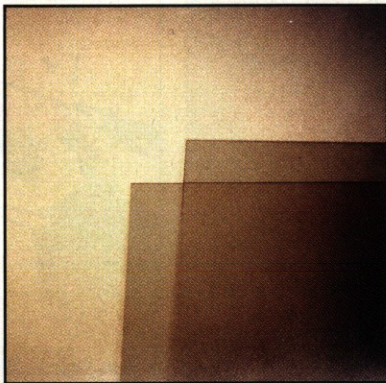
9 The dry texture was placed over the flying beetle and switched to the Difference option within the Layers palette. The end result is a rather psychedelic-looking texture.

Part 3: The shaving cream sandwich

An odd but effective way to create an odd but effective texture...

Backdrops

When preparing different scanner effects, you will want to consider whether to use a white or black backdrop. If you are planning to screen your scanned texture over the top of a dark composition, you should use a black backdrop. That way, the only pertinent colour information will be the light colours within texture itself. If, however, your main composition is fairly light you should use a white background, so that you can multiply the imported texture into your design.



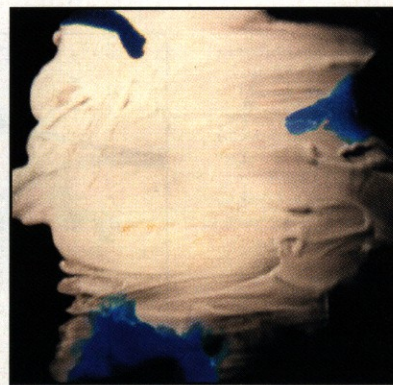
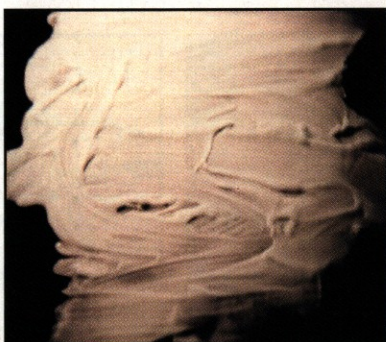
Moving specimens

There are obvious limitations when you are working with moving specimens. Depending on the speed of your scanner, you will not be able to capture a moving image at a high resolution. You can however, up the stakes of your resolution if you decided to remove the colour information from your scan. The speed of the scanner will grab higher quality images quicker in greyscale. If you increase your dpi from 150 to approximately 250 in greyscale the quality of captured movement will look about the same. The speed of the scanner tends to move fairly quickly when it disregards colour.

1 You will need two clear plastic sheets for this experiment. Make sure each sheet is clean and dust-free. It's better to remove dust and other fragments from these sheets with a clean dry rag, rather than with paper towels which have a habit of depositing their own residue onto the sheets.

2 Shaving cream is also required. For this experiment it is better to get a shaving gel rather than a cream, as it spreads better in smaller amounts and is more controllable. Both types will work though. A black piece of paper should also be available to use as a backdrop.

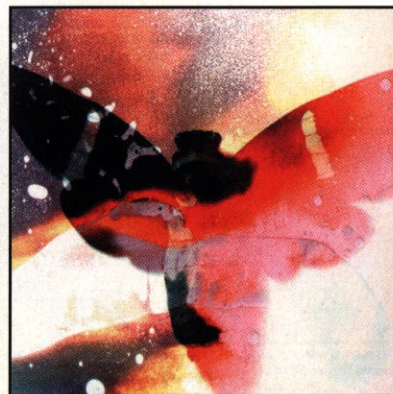
3 You will need your water colour paints premixed and super saturated (see part 2, step 5) or use coloured inks. Once again, you will need an eyedropper or a paint brush to drop the paint or ink into the cream.



4 Take one of the two plastic sheets and lay it flat onto your scanner top. Gently add a small amount of shaving gel onto the centre of the plastic sheet. With your fore finger, smudge the gel across the sheet from one end to another. Make sure you leave at least 4cm of space from the entire perimeter of the sheet to prevent any leakage.

5 Now, with your eyedropper or paint brush, place three good drops of saturated paint onto the shaving cream. Make sure the drops of colour are quite a distance from each other.

6 Carefully take your second clear sheet and sandwich it over the top of the shaving cream spread. The edges of the two sheets should be perfectly aligned with each other to prevent the possibility of any run-off onto your scanner.



7 Now, press and push the paint/ink drops towards the whiter areas of the shaving cream. Continue to mold the colour until you are satisfied with the end result. Remember not to overdo it. It's important to have contrast between the rich colour and the white areas.

8 Give your newly created texture a chance to dry for a couple of hours. This will enable the tiny little micro-bubbles to have a chance to form into the texture. The end result will create an array of cell-like spheres of all shapes, colours and sizes. Once you've placed your black paper behind it, you can scan your texture.

9 This texture was placed beneath the flying beetle and inverted (Command/Ctrl+I). The hue was then adjusted (Command/Ctrl+U) until the texture became streaked with what looked to be a red light. The flying beetle was then overlaid in the Layer Adjustments palette. ➤

Part 4: Gooifying objects

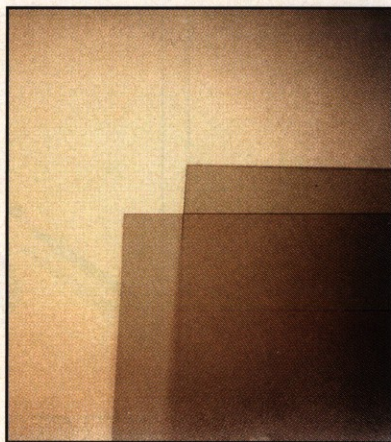
Adding goo to refract lighting spots around your specimen....

Think microscopically

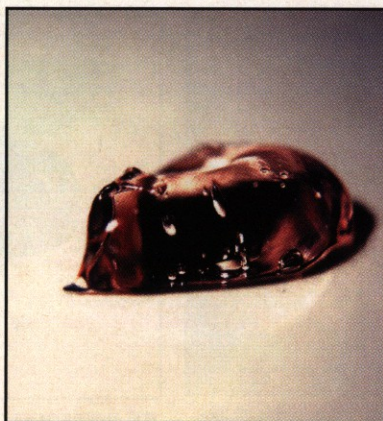
Always scan your experiments at high resolutions, unless they are dealing with movement. You may not notice in the scanned preview, but there are often tiny details that can be used as breathtaking textures into your imagery. You may want to take just small components of those textures into future designs. The beauty of scanning textures directly onto your scanner is that you don't have to worry about the quality of the image. You can scan them as high as your computer's memory will enable you to, and they will still appear crystal clear.

Picking paint colours

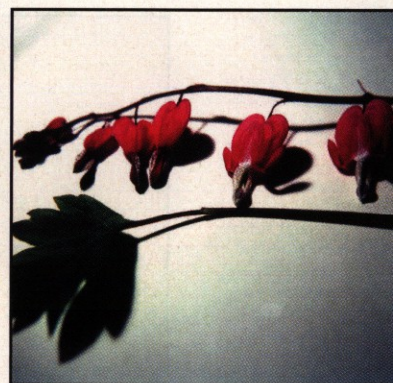
It is less important to pick colours that match your composition, than it is to use colours that have a good contrast between them. The hue of your paint within the texture can always be manipulated digitally to suit your particular design. The special ingredient to interesting compositions is to have paints/inks clash with each other so that they have a chance to form distinct patterns that contrast with each other.



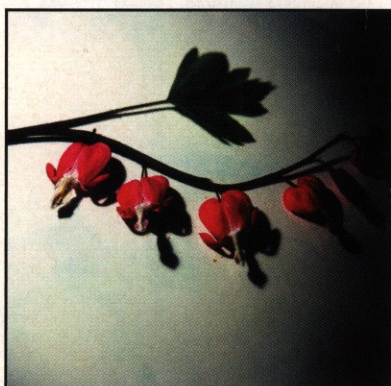
1 For this section, you will need two clear plastic sheets, both of which should be clean and free of dust particles (see part 3, step 1). A black piece of paper is also needed for a backdrop to place over your prepared scanner slide.



2 You will also need a type of gel that is translucent enough for a good amount of light to break through. Hair gels work very well for this, as long as the product that you choose is fairly clear. If you don't have hair gel available to you, washing-up liquid should suffice.



3 You will need to find a type of plant specimen to gooify. When you decide what to use, make sure the plant is not too flat. It's better to use something that has good depth to it, but which can still be sandwiched between two plastic sheets. Your results will be more impressive if the gel is clinging to your object at slightly different heights. Here, we are gooifying a stem of bleeding hearts.



4 Place the bleeding hearts onto the middle of the slide. Arrange your specimen exactly how you would like it to appear. In this case, each flower has been placed with equal spacing around it with a well-placed stem.



5 Squeeze a generous amount of gel over the plant specimen. You may have to reposition your plant slightly after having gooed it. Allow the gel to collect around the plant, so that it appears to be within a substance as if the plant has been preserved inside Formaldehyde.



6 Place your other clear plastic sheet very carefully over the specimen and gel. Once this has been done, crush the plant into the gel with the palms of your hand. Make sure the specimen is on a sturdy surface – not the scanner – when you do this.



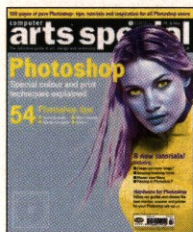
7 The plant should now be completely immersed in the gel. You'll notice that there are bubbles surrounding the plant and other odd textures that may occur around its perimeter.



8 It is now time to place the prepared slide onto the surface of the scanner. Once you've done this, you have two options to consider. You can either place a white or black backdrop behind the slide. For the purpose of this tutorial, a black backdrop will be placed behind the slide, making it easier to screen the image on top of another.



9 The bleeding hearts texture was placed above the flying beetle. The colour was then adjusted by using the Hue/Saturation mode (Command/Ctrl+U) and colourised so that the entire layer has a blue hue. Convert the Layers palette to Difference, which results in two distinct hues within the composition.



This tutorial was originally printed in issue 34 of *Computer Arts Special*, 2002. You'll find a wealth of creative techniques showcased in *Computer Arts* and *Computer Arts Special* every month, explained by the world's leading digital artists, illustrators and designers. Take advantage of our subscription offer on page 46.

Part 5: Fishing for movement

A method for capturing aquatic movements with your scanner....

Texture library

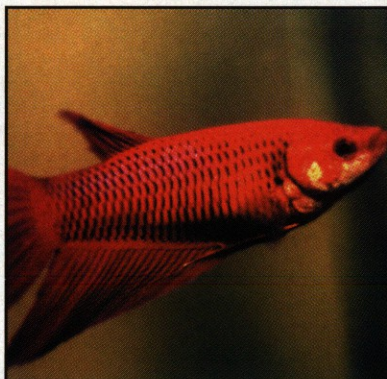
If you haven't already started building a library of your own textures, take this tutorial as an opportunity to begin. The more unique textures you have in your possession, the more creative choices you have for your future compositions. Try to make a point of adding a new texture at least once a week. You'll be very happy to see what you've accomplished by the end of the year.

Dim lighting

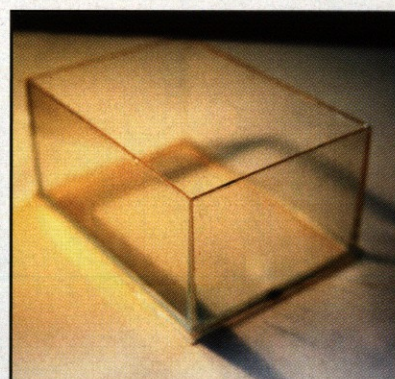
The purpose for dim lighting within these experiments is to create an environment for scanning, without having to have the lid on your scanner. Unfortunately, not everybody has an office or studio that is conducive to dim lighting during the day. One solution is to use an box to protect the scanning process from stray daylight.



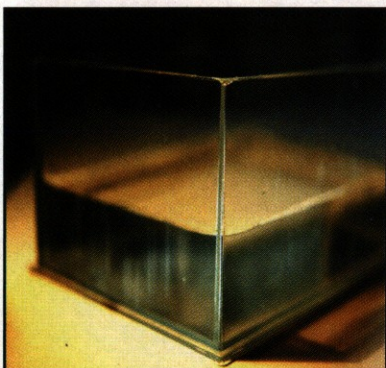
1 The most important thing that you will need for this part of the tutorial is a healthy respect for the creature you choose to scan. You should have a good understanding of your subject and the movement you are hoping to capture. Do not bother doing this experiment if you plan on terminating the life of your subject upon completion. The point of this experiment is to appreciate the living component of movement, and not to harm the animal's life in any way.



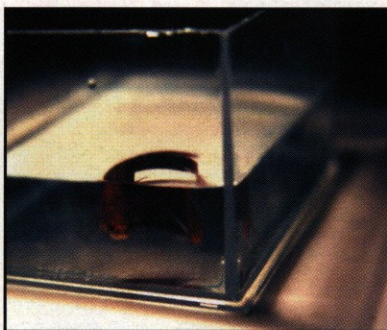
2 This experiment requires the use of a fish, specifically a male beta fish. It makes a good subject because he has long flowing fins and is bright in colour. Also, he does not require a filter or a heater and is very comfortable in shallow waters. He is at home in a fish bowl, as any goldfish is – they are not as delicate as most tropical fish you may find in a pet store.



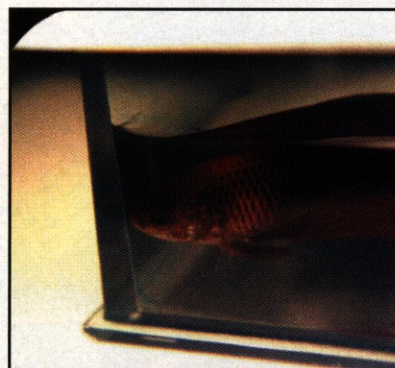
3 You will need a clear glass container (see part 1, step 1). If you've used the container previously for other effects involving paint, make sure that you clean it out properly. Paint is toxic to the fish, so make sure you clean it out meticulously and leave the container under running water for about ten minutes. You will also need white paper as a backdrop.



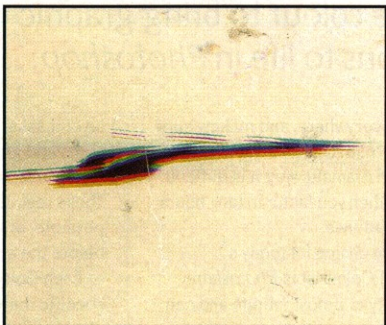
4 Fill the clean container so that it is about 4cm deep. The water that you fill the container with should be the same water that the fish has previously been swimming in. If you place the fish in tap water, the shock is likely to kill him.



5 Your fish should now be swimming within the container. Make sure the container's bottom is completely dry before placing it onto your scanner. Leave the fish there for at least ten minutes before continuing. Let him get used to his new environment. The calmer your fish is, the slower he will move which makes your images better.



6 The light in the room should be dim (see part 1, step 8). Also place your white paper as a backdrop on top of the container, so that the light of the scanner has something to bounce off to contrast the fish.



7 Scan the fish at a resolution that is workable for your imagery, but moves fairly quickly across your scanner. For example, if you scan the fish at 300dpi or more, the light bar will move too slowly as your fish moves back and forth. Which means your image will be nothing but specs of colour here and there. The above image shows the end result of a slow-moving resolution – this is not what you want.



8 Instead, choose 150dpi or less to capture the fish's movement. The scanner will move quick enough to capture the fish's graceful fins, so you will most likely want a series of fish captures, so continue to scan him until you have ten good takes. The best takes usually occur when the fish decides to follow the bar of light. The movements should be long and slender.



9 A series of scanned fish were placed one at a time surrounding this flying beetle. The Darken palette was chosen in the layer box for each fish, which caused the beetle to appear to be immersed within a backdrop of plastic containers.



Words, drawings, and colour are by Derek Lea, [e] derek@dereklea.com [w] www.dereklea.com



Files on disc
The file you need to complete this image is on the CD in the folder Tutorial\Photoshop\Comics. This is for personal training purposes only, and not to be reproduced elsewhere.

Colouring comic art

Learn how the professionals use colour to bring graphic novel and comic book illustrations to life in *Photoshop*...

There are three essential people in every comic book art department: the Penciller, the Inker and the Colourist.

The Penciller draws the original art which defines the overall look of the comic. The Inker refines the pencil art and will often add basic light and shadow. But the real unsung hero of the whole process is the Colourist.

The Colourist has the biggest job. This includes defining the overall colour palette, creating multiple coloured light sources and incorporating them into the frames and environments, adding detailed highlights and shadows

absolutely everywhere, and making sure that each spread balances out in a pleasing and dramatic way. It is difficult, especially when you factor in long hours and tight deadlines.

The tool of choice for today's professional Colourist is *Photoshop*. The flexibility is almost infinite and can save a lot of production time. Layers are indispensable; the ability to keep things separate within an image gives the Colourist the luxury of changing his or her mind along the way. It also enables subtle effects to be built up by combining layers, or to gently fade out and blend together certain areas using

layer masks. Things like quickmasks, paths and gradient tools can all be used together to achieve astonishing results. These results may not have been possible, or just too time-consuming, before the advent of *Photoshop*.

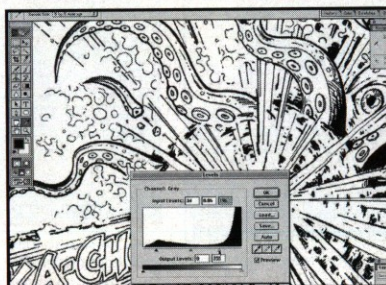
Each Colourist will have their own specific method of working that can often add to the unique style of each comic's artwork and look. This tutorial will give you a basic overview of how the process works and, when you begin to notice the amount of work involved, you will have a new-found respect for the Colourist — you'll probably never look at comic books in the same way again...

Part 1: Preparing the black ink drawing

After scanning the black ink drawing, we'll need to clean it up a little before we can start introducing colour to the illustration...

Overlapping colours

As a general rule, you want the most flexibility possible at all times. So always remember this: if one colour overlaps another, then it should be on a different layer. Sometimes after you are finished you may want to alter the Hue/Saturation or ink content of a specific colour or area of the image. You can save yourself a lot of trouble by keeping things as separate as possible. This way, an adjustment to one part of the image doesn't require a new selection or mask to protect the rest of the image.



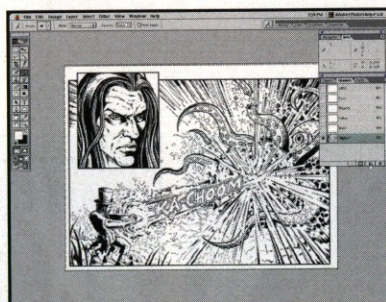
1 Open the scan of the ink drawing, black.psd, which is in the Tutorial\Photoshop\Comics folder on the CD. The first thing to do is increase the contrast to eliminate the mid-tones that are a result of the scanner. You want to brighten the whites, darken the blacks, and eliminate any greys in between. Use either Levels, Curves, or Brightness/Contrast – whichever one you are more familiar with.



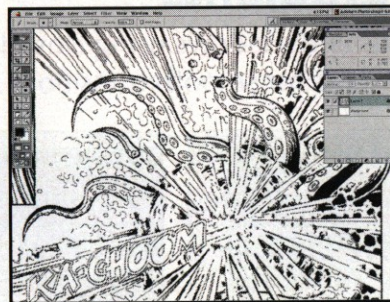
2 Even though the Inker has done a wonderful job, the scanner will reveal the less obvious imperfections. Zoom in on some of the solid black areas, and you will notice little spots here and there that aren't covered. Take a small, hard-edged brush and paint over the white specks in the solid black areas using a fill colour of black.



3 Now, use the same hard brush with a fill of white. Paint over white areas that have little black specks that shouldn't be there. Feel free to smooth out or sharpen some of the black linework. Also, go ahead and paint over any black linework that you think makes the image seem overworked.



4 Select All (Command/Ctrl+A), and Copy (Command/Ctrl+C). Create a new CMYK file, (Photoshop will make the dimensions the same as the contents of the clipboard). Create a new alpha channel in the CMYK file, and paste the image into the channel. Command-click the channel icon to generate a selection from that channel.



5 You will probably need to invert the selection (Command/Ctrl+Shift+I) unless you have changed the channel options from their default settings previously. Create a new layer in the Layers palette. Select a foreground colour of black and fill the active selection with the foreground colour (Option/Alt+Delete).



6 Deselect (Command/Ctrl+D). Apply the Lock All function to this layer in the Layers palette. We will be using this layer to generate selections from, so we don't want to accidentally apply any colours to this layer as the colours will go on various underlying layers. The Lock All function ensures that this layer will not be moved or modified in any way.

Part 2: Adding colour

On underlying layers we'll add some basic colour schemes to define the overall colour palette...

Using actions

Tasks like expanding selections will come up again and again when doing this sort of work. Remember to use the Actions palette. Go ahead and record an action that expands your selections by one pixel and assign the action a function key. Believe us when we tell you that something as simple as this can really speed up your production. You could shave hours off of the time it takes you to apply colour to an entire book.



1 On the background layer, draw a rectangular selection the shape of the image. Fill it with a foreground colour of teal (Option/Alt+Delete). Use a linear gradient with the foreground set to Transparent to introduce a green gradient from the bottom up. Create a new layer and fill a rectangular selection the shape of the inset with blue.

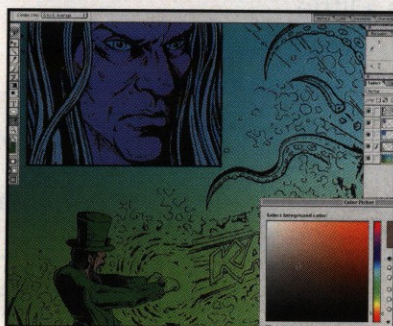


2 Use the Magic Wand tool on the black layer to click on the large open area inside the face. Make sure Anti-aliased and Contiguous are enabled in the Tool Options bar. Hold down the Shift key and click on the open areas for the cheeks and the neck to add them to the selection. Choose Select>Modify>Expand and enter a value of 1.

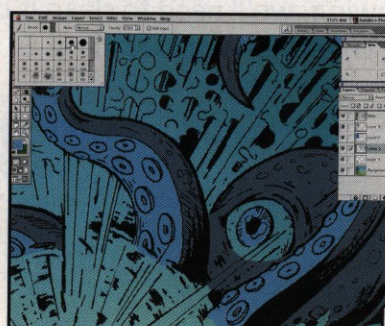


3 This expands the selection enough to close the gap between the black and the colour. Create a new layer under the black layer and fill the selection with purple. Deselect and use a small hard brush to paint in some colour in the areas that weren't included in your selection, like the eyelids.

Part 2: Adding colour, continued...



4 Go ahead and use the Eraser with a hard-edged brush to remove areas where the selection has strayed, like into the hairline and the right eye. Find other areas throughout the image where areas are enclosed within black pixels. Use this quick method to begin adding colour throughout the image on different layers.



5 The second quickest method is to simply paint using a hard-edged brush. Basically, you don't have to be too careful, because the top layer has a black outline surrounding most of the areas you will want to fill. Go ahead and choose some colours from the Picker, use different sized brushes where needed, and begin painting.



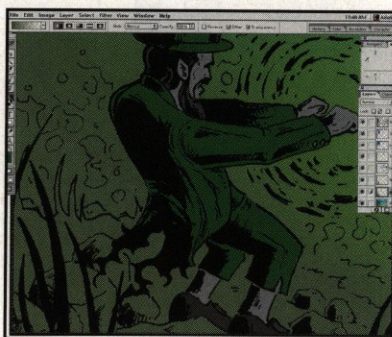
6 Make sure that the colouring of the suction cups on the tentacles are done as a separate layer from the tentacles. We will soon be adding light and shadow, and we'll want to do them separately without masking them. Also, when you add the "ka-choom", do it as its own layer too. When we create the explosion, "ka-choom" will be on top. All other colours will be underneath.

Part 3: Paths and gradients

Now we'll add in some highlights and shadows using closed paths to generate selections, and gradients for smooth transitions...

Staying organised

In an image like this, with many layers, it's easy to get confused. Here and there, you will want to go back and tweak colours on different layers. A good way to keep track of things is to name your layers so that you can reference them quickly in the Layers palette. Also, each element in this image is made up of several layers. Try colour-coding the various layers that make up one element. For instance, make all of the layer icons for the layers that make up the octopus yellow, such as the solid colour layer, the tentacles layer, the highlights and shadows, and so on. You can specify the name and the icon colour of a layer under Layer Properties in the Layers palette sub-menu.



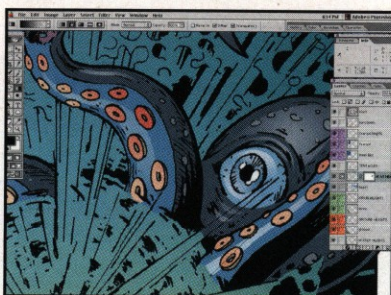
1 Next, blend the colours together using gradients. Here, inside a rectangular selection, we used a linear gradient with the option of Foreground To Transparent on a new layer, with a muddy green fill colour. This is a good way of showing the muddy shore blending into the water.



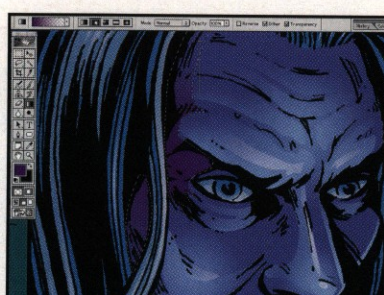
2 Use the Pen tool to draw some closed paths where highlights should appear. Command/Ctrl-click the path icon in the Paths palette to generate a selection from it. Create a new layer, and inside the current selection, use the Radial Gradient tool with the Foreground To Transparent option to introduce a series of gradients for highlights, using light foreground colours.



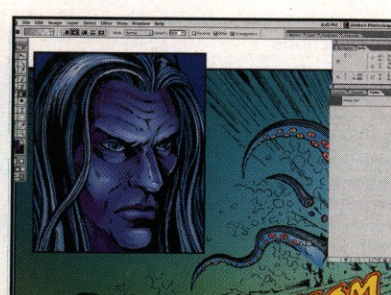
3 Now try adding in some smaller gradients without using selections, with a lower opacity setting, to even the highlights out a bit. Use the same Pen tool/gradient technique to make smaller brighter highlights on top of existing ones, to mimic specular highlights. Use these techniques on various layers to add highlights to all of the elements in the image, except the explosion.



4 If you notice that some of the edges of your highlights or colour layers are too sharp, go ahead and add a layer mask. You can soften any of the shapes by using the Radial Gradient tool on the layer mask with a fill of black to transparent; you can also use a large, soft brush with a low opacity setting to achieve the same effect. Use whichever you find more intuitive.



5 Now use the Pen tool to draw some closed paths where shadows should appear. Make a selection from your closed path. On a new layer, inside the current selection, use the Radial Gradient tool with the Foreground To Transparent option to introduce a series of gradients for shadows, using darker foreground colours.



6 Next, add in some smaller shadow gradients without using selections, with a lower opacity setting to help even out the shadows. Use this same technique to make smaller, darker shadows within the existing ones to give them some depth. Go ahead and add shadows to all of the elements in the image, except the explosion.

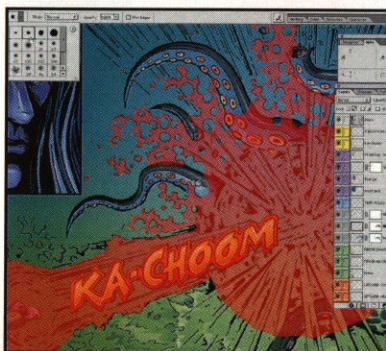
Part 4: The explosion

Help the leprechaun blow up this beast, starting with Quickmask and finishing by painting over the content on the black ink layer...

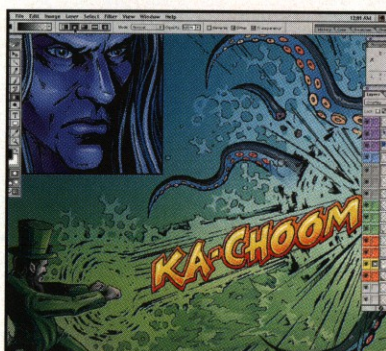
Colour palettes

Often, when colouring an entire book, you will want to use certain colours again and again for consistency. Defining a key group of colours will help create an identity for your comic book, so why not create a custom swatch palette to keep handy those colours that you will want to access again and again.

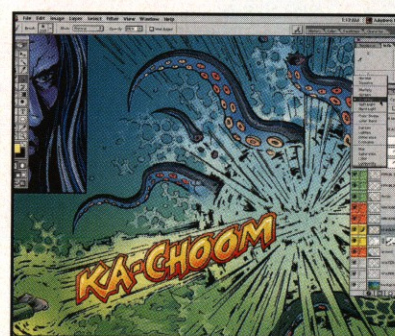
First, delete the swatches in the Swatch palette by holding down the Command/Ctrl key and clicking on them one by one. Then, sample a desired colour from the image using the Eyedropper tool, and click on the Swatches palette. The colour will be added to the swatches. When you have created a group of colours that you will use again and again, save the swatches by choosing Save Swatches in the Swatches palette sub-menu.



1 Enter Quickmask mode by typing Q. Use a hard-edged brush with an opacity setting of 100 and a fill of black to begin painting a mask. Use larger or smaller brushes where needed. Fill in the area of the explosion and the crackling energy, as well as the area around the leprechaun's hands and the beam of light.



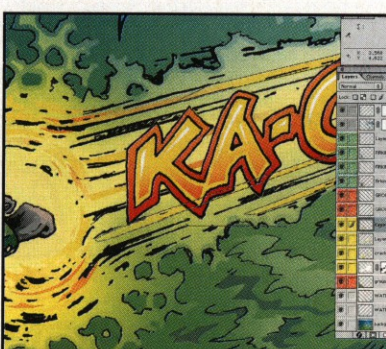
2 Exit Quickmask mode by again typing Q. Create a new layer just above the background and fill the selection with white. Reduce the opacity of the layer to 40 per cent, and change its mode to Overlay. Add a layer mask and gently mask out any unwanted hard edges using radial gradients and soft-edged brushes.



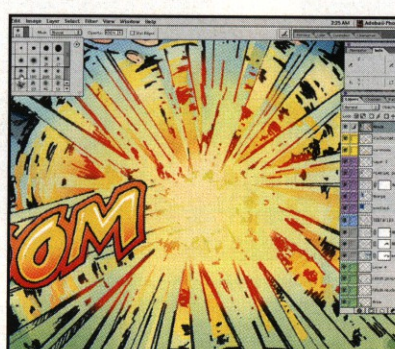
3 Command-click the layer icon to make a selection from it. Choose Select>Modify>Contract and contract the selection by 10 pixels. Create a new layer with a mode of Overlay, and use the Radial gradient set at Foreground To Transparent to introduce a series of small gradients in different areas of the selection. Use colours sampled from the background.



4 Create a new layer. Select a large, soft-edged paintbrush and paint a light yellow colour in the centre of the explosion and in the area where the leprechaun's hands are. Paint in varying opacities, with the settings getting lower the further out from the centre you get. Add a little yellow in along the beam of light under "ka-choom".



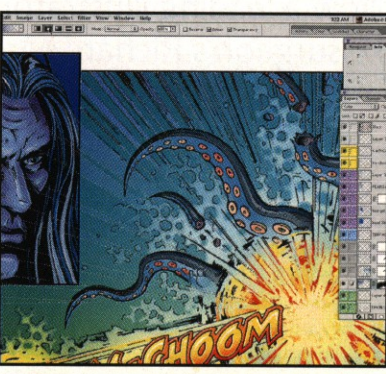
5 Create a new layer. Now, use the same method we have employed previously to draw some closed paths, and use gradients inside the selections to add sections of colour to all parts of the explosion. Use mainly orange and yellow to convey the feeling of heat. You can also create a series of these layers if you like.



6 Select the black ink layer. De-activate the Lock All function, and enable the Lock Transparency function. Choose a large, soft brush, and use the Eyedropper to select colours from within the explosion. Paint over the black ink that lies within the centre of the explosion, as well as the area around the leprechaun's hands.



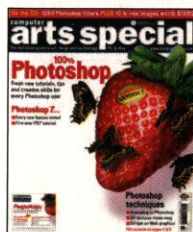
7 Create a new layer underneath the black layer. Create a small radial gradient with a fill of light yellow to transparent directly over the top of the leprechaun's hands. It helps to convey the idea that the power behind the explosion is emanating from his hands.



8 To make the explosion even more dramatic, add in some gradients along the top of the image. Create a new layer and draw a series of paths for generating selections. Use the Gradient tool inside the selections to create subtle blends of colour. Add a layer mask and mask out unwanted areas using brushes and gradients on the mask.



9 Employ this method to create some streaks of light emanating from the centre of the explosion. After that, your job is pretty much finished. You could of course carry on working with the image, adjusting the colours on individual layers, adding in some descriptive copy, voice bubbles and so on.



This comic art tutorial was originally printed in issue 30 of *Computer Arts Special*, 2002, an issue devoted entirely to *Photoshop*. Keep up-to-date on the latest *Photoshop* techniques by subscribing on page 46.



Illustration: Richard May [e] www.richard-may.com

Designing to a brief

Follow a leading illustrator and *Photoshop* pro – Pixelsurgeon's Richard May – through the process of meeting an editorial brief...

Creating a spot illustration to accompany an editorial piece requires much more of the illustrator than the creation of a pretty, aesthetically pleasing, ambient image. It's extremely easy, especially when illustrating technology articles and features, to fall back upon the same old painful clichés: wireframe grids, glowing monitors, reams of zeros and ones. If the article (or, as is often the case, the art director) specifically calls for such an approach, then so be it – you have a job to do and a deadline to meet – but

wherever possible, try and engage the brain. We know you have one.

This *Photoshop* tutorial isn't a tutorial in the traditional sense – we're following Richard May through the creative process behind the opening illo. The brief? To illustrate a piece on the pros and cons of switching from traditional photographic techniques to digital cameras. *Photoshop* has been used due to its almost limitless flexibility, but bearing in mind that it's still just a means to an end for any good illustrator. It's a time-saving piece of digital magic, but

it certainly won't sit there for you at two in the morning and start jotting out ideas as you catch forty winks. And it won't, despite the wishes of many designers, communicate with clients on your behalf.

So make a brew, put your slippers on and dive in. If you're following this tutorial step-by-step, in front of your computer with a blank canvas staring back at you, you're not so much *missing* the point as driving by it at 200mph in your Kai's *Power Tools* hotrod. Slow down, and put your conceptual thinking cap on...



Artwork and expertise by Richard May, [w] richard-may.com. You can also contact Richard at Pixelsurgeon Creative Consultants via [w] www.pixelsurgeon.co.uk, or at [w] www.pixelsurgeon.com.

Part 1: The groundwork

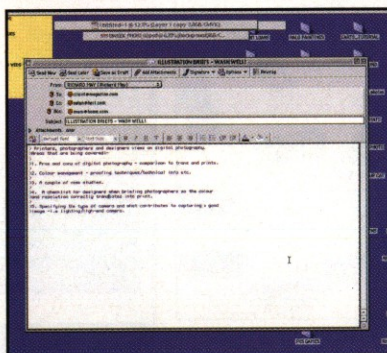
Make some sketches, think about visual metaphors and rifle through your image library – the first stage is all about ideas...

Overcrowding

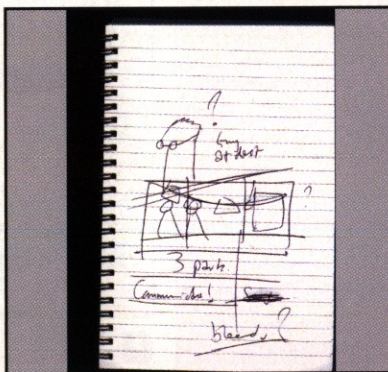
"I try, whenever possible, to divide my illustrations into three or four basic elements," Richard explains. "Both thematically and visually (often the two are inseparable). Crowding the image with a million focal points rarely works, only serving to confuse. It's almost like admitting that you don't have a good idea, only lots of little half-hearted ones."

Image credits

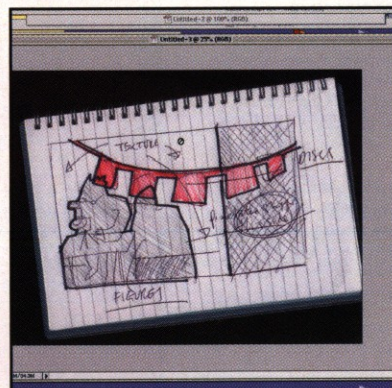
Images of Zip disks courtesy of Iomega. [t] 020 7365 9527. You can buy Iomega products online at [w] www.iomega.co.uk. A version of this illustration originally appeared in *Design Week*.



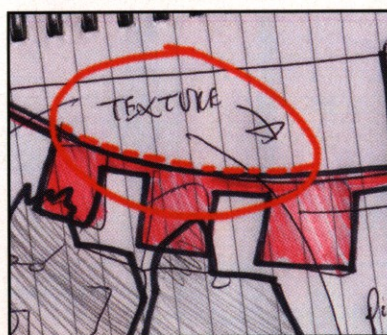
1 Our illustrator's opening advice: "Sit down with a sketchpad and a copy of the brief from your client. The more time spent as an illustrator, the more visual shorthand techniques you'll develop, often cutting this stage to five minutes or so as you quickly rack your brain for visual metaphors, but it really depends on the job."



2 This particular brief is ostensibly a simple one: a straightforward guide to the pros and cons of switching from traditional photographic techniques to digital cameras and associated gubbins. There are no complex themes or subjects, so it's up to you to be creative with the message.



3 The article calls for an illustration that conveys the essence of the subject matter with a quick glance. It may be more informative than entertaining, so enticing the reader with a pretty image is also a consideration. The best of both worlds.



4 Briefly onto the background. "I wanted to represent, as simply as possible, the transition from darkroom dwelling to digital development. The background needs to be a relatively neutral area for later juxtaposition, but it also needs to say something." The best solution was a transition from texture into pixels; tactile scratches and marks into clean blocks of colour.



5 Richard May had the idea of a photographer sitting at a table, fiddling with his camera, back-turned on an open doorway filled with pixelated light. This alone could possibly convey the wrong message – as though the article centred on the photographer's reluctance to move on. Hence the need to introduce a third element and focal point.



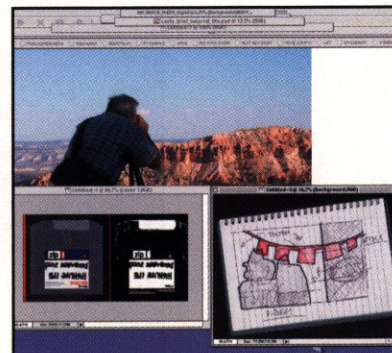
6 If you have your own photography library, start sifting through it for potential images to scan. Failing that, Google Image Search [w] www.google.com is your best friend. It's a good source of obscure visual reference. Just be careful when saving images to disk and using them in your illustrations. Clever photo montage is one thing, a lawsuit is another. "Be creative. If your design is for publication, appropriate and modify. Basically, use at your own risk!"



7 "What could I take (so to speak) from a darkroom and have a little fun with, almost creating the visual equivalent of a play on words? The drying line (used to hang wet prints) seemed a good choice – maybe I'd peg a few disks on there. You'd need to look twice, but it would be another way of illustrating the metaphorical bridge between old and new."



8 Scan in the Zip disks (or CDs, if you're so inclined) and bang the contrast right up, then desaturate. Cut them out to white and save them for dragging and dropping onto your main canvas later. "I wanted a completely lo-fi feel to this illustration, rendering the usual anti-aliasing concerns pretty much null and void. This kind of look may not suit your way of working, so it's up to you. Whatever you do, unless you're being paid by Iomega, remove the Zip logo. It's unimportant, and you don't have permission (see step 6)."



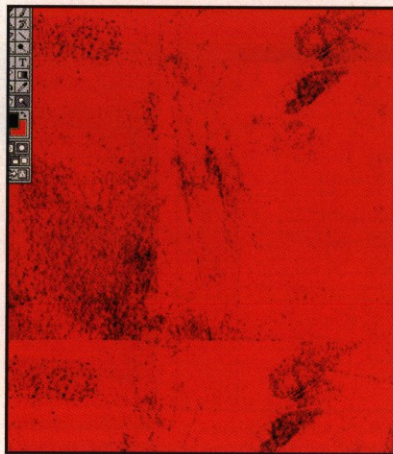
9 Now, before you begin work, double-check and make sure you have at least the basic elements of the image sorted out and ready to go. It's often the case that you'll have a bright idea at the last minute, but don't rely on it. If you're working to a deadline, you need to have the basic concept under control.

Part 2: Form and function

Next up is adding to the background, using scanned-in textures and multiple layers...

Keeping perspective

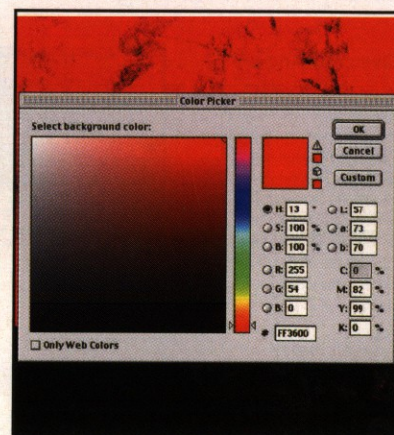
It's good to retain at least some semblance of reality and line-of-sight perspective, even if this is only alluded to with a simple horizontal line. We all rely on small visual clues on a day-to-day basis and our memory automatically fills the gaps. This allows for some creative interpretations of reality, but we're not creating fine art – illustration in this context is all about communication.



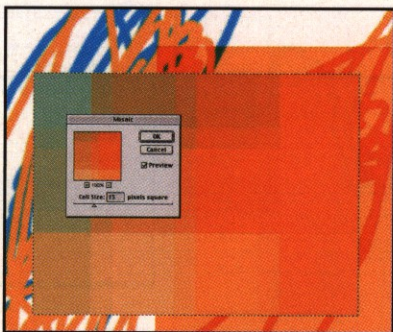
1 The idea was to at least create the atmosphere or feel of a darkroom, so deep red and shadowed texture was the order of the day. The red is simply a colour fill set to Multiply (see step 3).



2 The background texture was basically a plastic bag that Richard May used as a base for spraying window latch bolts for decorating his studio. This left a lovely, random stencil pattern, and that combined with the folds of the plastic made for good texture when scanned. "Play around with the contrast and levels to achieve the level of detail that suits you."



3 A new layer was created – a block red colour which was then multiplied several times with different layer effects, such as Hard and Soft light, Multiply and so on. It never hurts to introduce more textures to the mix – just experiment.



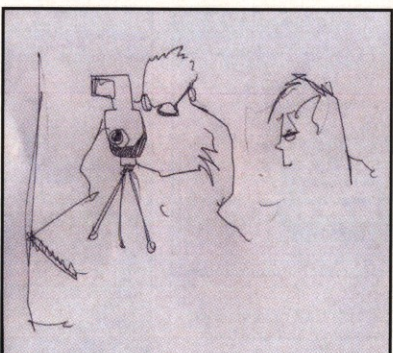
4 This is where the 'digital' aspect of the background is introduced, and that's simply a case of using the faithful Mosaic filter from the Filters menu – nothing complicated here. Work on a separate canvas, then just cut and paste onto your main canvas as you see fit. Simply draw a few colours with a thin paintbrush (keeping in mind your colour scheme) and hit Apply.



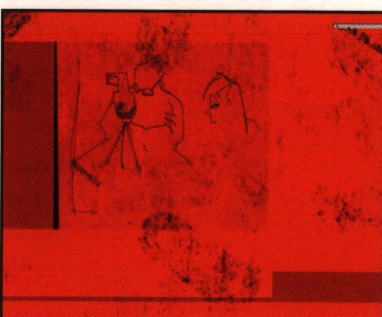
5 Chop into the main artwork with the Polygonal lasso tool and create shapes and pseudo-shadows, lines and form. Flatten layers if you like – you can always do them again. Try to use layers only for the main elements of the illustration, and don't allow your file to get too big; speed is of the essence. Work quickly and be confident. Carelessness is fine, at least for now.



6 If you were successful with your research, or hit jackpot at Google, you have a suitably lo-fi shot of a paparazzi or amateur photographer. Chances are it's only 72dpi, but once again, you're not going for perfection. Re-size to 300dpi (which is obviously what you should be working at for print) and ignore or even appreciate the image dithering.



7 Time to go back to the sketchpad. Print out a high-contrast, black and white version of the photo and roughly trace around the figures on the other side of the paper (hold it up to your monitor, or a window). Be creative as you go along to fill the gaps – you don't want a perfect trace, just a rough approximation to overlay. Next, scan it back in.



8 Drag your drawing layer onto your main canvas and roughly re-size it to fit, although this is one element of the image that you should ensure retains its quality – not everything should be pixelated. If in doubt, scan at a higher resolution than needed and size down. You may wish to draw your figures in *Illustrator*, or with the Brush tool in *Photoshop*. It's not important – as long as you have some kind of outline, you're sticking to your plans!



9 Create a new layer and zoom in on the figures. Next, use the Polygonal lasso tool to roughly draw an outline around the drawing, then add to this by using the Pen tool to create a white outline. Be abstract and messy, but never lose sight of the fact that your figures should be figures, not blobs. Ideally, you're aiming (unless you're an airbrush fetishist – and that's not healthy) for a tactile, hand-drawn quality, even when using the *Photoshop* tools.

Part 3: The clock is ticking

You've got the main background, the digital doorway, plus your figures on the artwork. Now we'll tie these elements together...

Getting distracted

Aside from various stylistic elements, hopefully nothing is misleading the viewer. Anything that could distract from the point of the image must go. Scratch away, but don't start cluttering your image with superfluous details for the sake of realism or perspective.

FTP software

If you're lucky enough to have a broadband connection, you'll do well to bag yourself an FTP application such as *Fetch* or *Transmit*. Both are available as free trial versions from their respective sites. This is a great way (providing your client is technically-savvy – you'd be surprised) to avoid using snail mail to deliver your work, allowing you an extra few hours to make those important last-minute changes.

Clock watching

As silly as this may sound, it may even be a good idea to time yourself when working. Although in an ideal world art and design shouldn't be rushed, we all know that a deadline is a deadline; and hey, if you can make more money by working faster, that's a good thing, right?



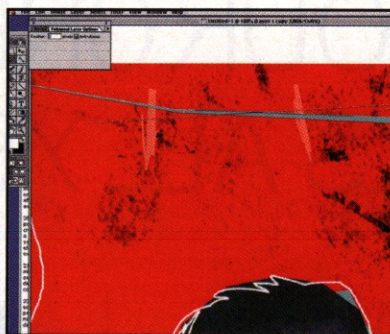
1 Leave the components we've created as they are for now, and think about how your illustration as a whole could be more reminiscent of a darkroom – back to those Zips on the drying line. This third element is effectively the transition piece, metaphorically linking everything together.



4 Duplicate the Zip disk layer several times, adjusting the size of the individual layers to give some illusion of perspective. Richard May: "The trick is, at least as far as I'm concerned, to not veer too close to realism; but you do need some illusion of depth."



7 The basic illo is now almost finished. The point is illustrated in an adequately subtle way, yet there's no doubt in the reader's mind that this image is there to illustrate a photography-related article. Finally, add a horizon line (of sorts) to the image to enhance depth – that should be all the extra detail you need.



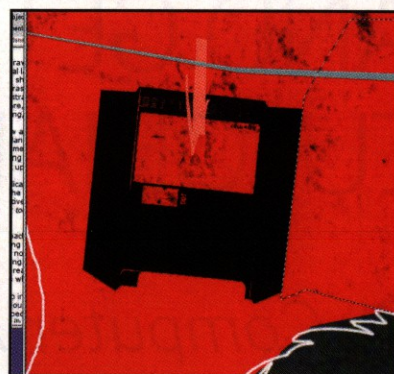
2 To draw the line, simply create a new layer and use the Polygonal lasso tool again, overlapping on itself to create a sharp, angular line. You may want to draw this with a contrasting colour using the Pen tool – whatever works for your illustration. If you have too many scratchy marks elsewhere, stick with the lasso. Contrast and balance is everything, and too much of one technique is bad news.



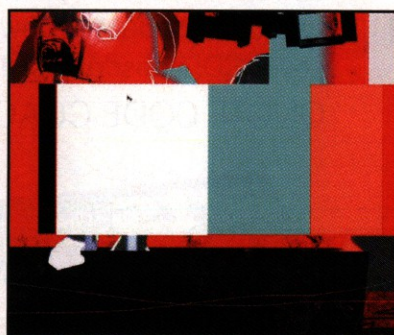
5 Go back to your figures and start working away at the underlying original photograph with the Eraser tool – if this photo is not your own (again, see step 6 in part 1) you need to be eliminating as much of the original image as possible, for obvious legal reasons. Consider it as a guide with useful aesthetic qualities where needed, and use your judgement.



8 "I've deliberately avoided detailing the individual key-presses and tools used in this tutorial. The main techniques used are layer effects and Lasso and Pen tools. It goes without saying, but unless they have a purpose, avoid filters like the plague. Remember to keep cropping to reduce file size. This is the time to think more about general composition and colour – if it distracts, bin it now."



3 Draw a few pegs where you see fit, keeping in mind balance and composition, then grab a Zip disk and drag it over. Remember, you're doing the right thing if you're destroying image information (losing pixels), so push that contrast up some more with your disk layers.



6 Keep in mind that to work as an attention-grabbing image, your illustration should not be running all over the colour spectrum. Try and stick within a particular colour range for each illustration element, plus contrasting blacks and whites for 'drawing.' By all means use bright green, but not for the sake of it. Red was chosen for obvious reasons, and the blue worked as a contrasting colour.



9 Bob's your uncle – one finished illustration. Final tip: "Sign it off with a cheeky signature or logo if you can squeeze one in – try and incorporate this into the overall design. Don't just slap a scrawl on there – see where it'll fit. A little Pixelsurgeon.com flame on a disc label is the perfect place for self-promotion. If it doesn't work though, don't do it."



This tutorial on illustrating to a brief was originally printed in issue 75 of *Computer Arts*, 2002. Every issue of *Computer Arts* and *Computer Arts Special* includes a selection of great creative software tutorials. Never miss an issue when you subscribe on page 46.

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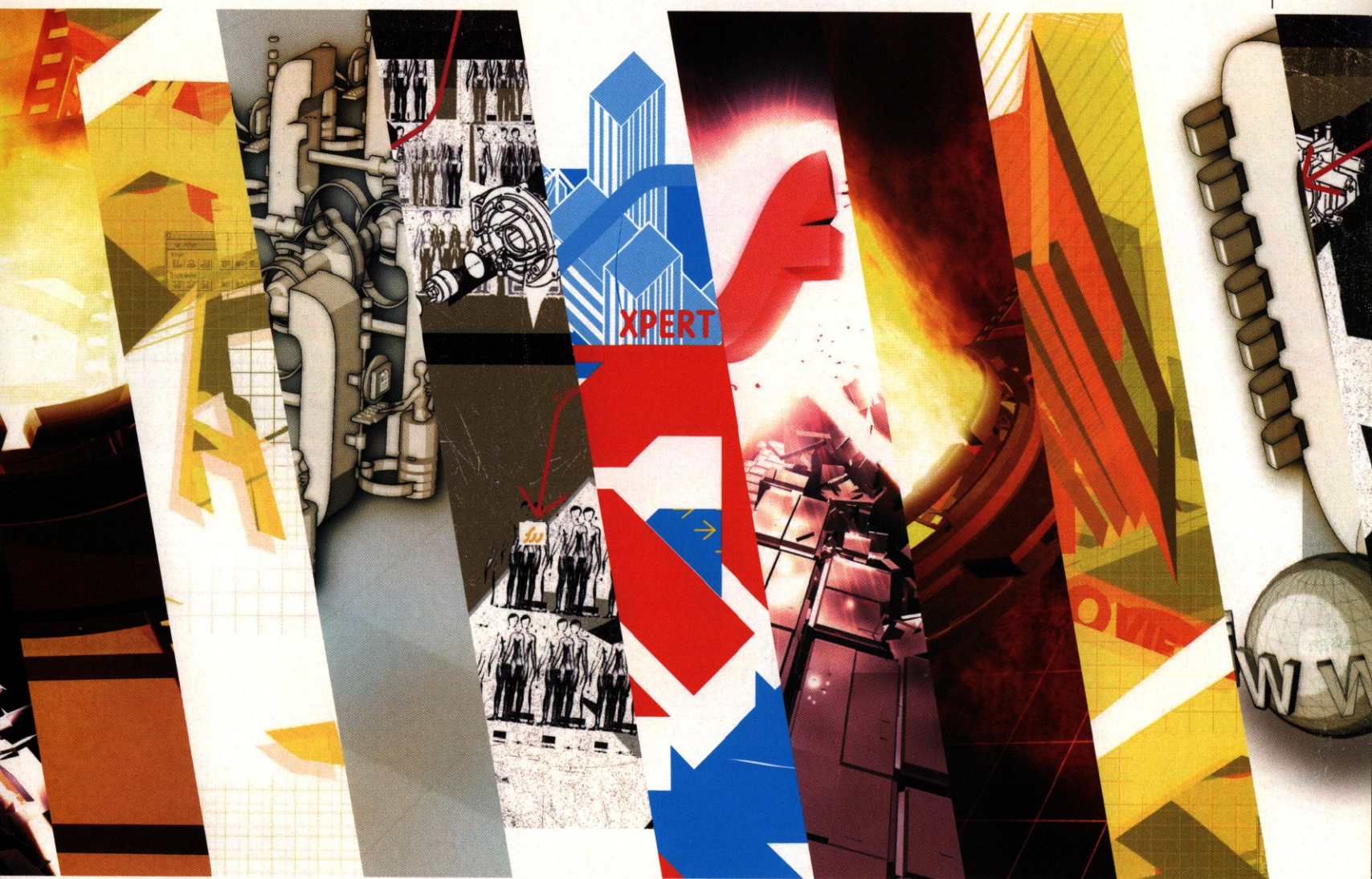
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50 Flash MX

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66 Using sound to control moves

Flash MX's microphone tools offer a world of interactivity

70 Creating components with Flash

The powerful capabilities of *Flash MX* components

76 Video in Flash MX

Embed video clips directly within your *Flash* projects





Illustration: Mark Dornicraft (e) mark_graphics@hotmail.com

Flash MX

Macromedia *Flash MX* can be used to build a site from the ground up. In this tutorial, we look at creating dynamic content...

In issue 70, 71 and 72 of *Computer Arts*, we took you through the processes involved in generating a

Website entirely in *Flash MX*. Part one looked at building a navigation system and layout, part two covered content, and part three focused on interactive elements such as message facilities.

This tutorial is part two: a self-contained feature on creating dynamic content for a site. We'll generate a Website that can easily be updated, and hone your *MX* skills in the process — starting with Smart Clips.

Smart Clips were a great innovation in *Flash 5*. They enabled developers to create *Flash* elements that users could drag and drop into their pages with little mess and even less fuss. The trouble was, they were tucked away in the Window menu where no one really paid attention to them.

In *Flash MX*, Smart Clips have been turbo-charged and given their own

panel. Now they're called Components, and you won't forget about them this time around.

Flash MX is bundled with a set of user interface components, and here we'll use one of these to create an effect that we doubt Macromedia would have anticipated when it was bundled.

And if you like free things as much as we do, you'll be happy to see that the Macromedia Exchange for *Flash* is being promoted far more heavily this time around. One bonus is that a second set of UI Components can be downloaded absolutely free. Just go to Help>Flash Exchange and sign up when prompted to get at the goodies.

Components aren't the only new aspect, of course. ActionScript has changed too. Savvy *Flash* users will notice that the Tell Target command is nowhere to be seen in this tutorial — its use has been replaced by hierarchical dot notation. Tackle our tutorial to see what we mean...



On your CD

The required tutorial files and a completed example file can be found on the coverdisc in Tutorial\Web Dynamic Content. Expertise supplied by Karl Hodge, [e] khodge@spodgod.com.

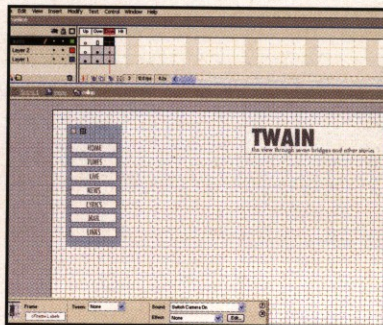
Take a look at the base file to see what delights are in store...

Ready to go

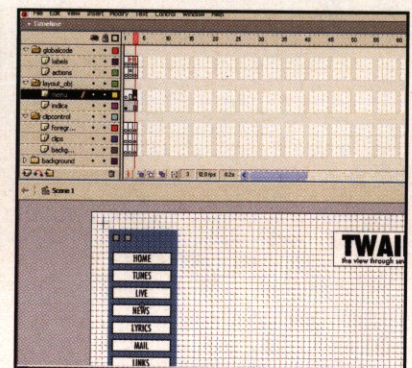
Because this tutorial is quite complex, we've created a base file that has a lot of elements already in place. You'll have to copy the contents of the Twainsite folder directly over to your hard drive for the external elements to work properly.



1 We've done a little tweaking to the base file since we last worked on the site. Open `twainsite.flr` from the Twainsite folder on your hard drive (on your CD in Tutorial\Web\Dynamic Content). The existing typography has been broken down into vectors. We did this by selecting the original type and hitting `Ctrl+B` in Windows twice (`Command+B` on the Mac).



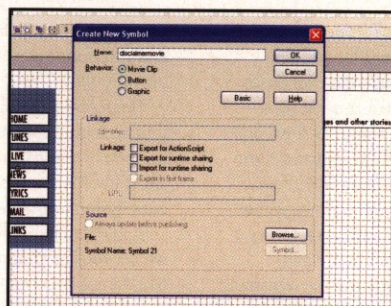
2 We've also added a sound effect to the roll-up menu window we created in the last issue. We did this by adding a sound from the Sound Library in Window>Common Libraries>Sounds direct to the Down stage of the roll-up button. It was simply a case of dragging and dropping the sound file from the Sound library to the Down frame of the button while in Symbol Editing mode.



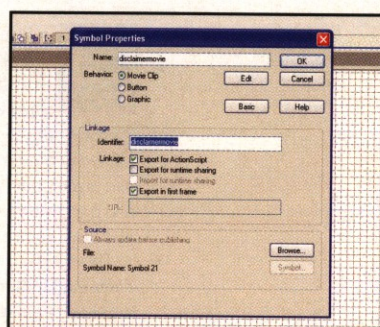
3 You may also notice that we've added some elements to the timeline. We've created a clips folder complete with new layers. Most of the things we create will be placed directly in the clipcontrol layer in the clips folder. We've also added labels and actions layers to the *globalcode* folder.

Part 2: Scrolling pane

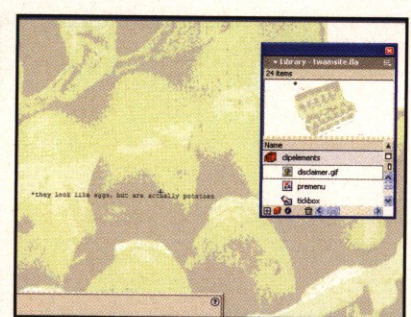
The UI components that are bundled with *Flash MX* add a lot of extra functionality with little fuss...



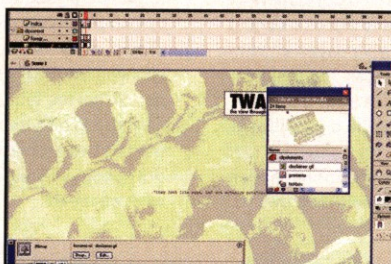
1 We're going to use the Scrolling Pane component in a way that Macromedia probably didn't intend... Start by hitting Ctrl+F8 in Windows or Command+F8 on the Mac to make a new movie clip. Name it 'disclaimer movie'.



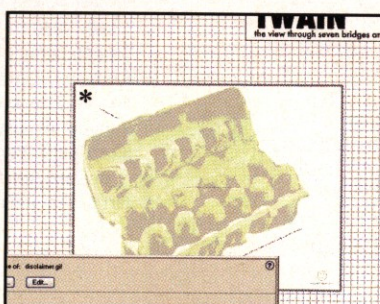
2 Click on the **Advanced** button and tick the box labelled **Export for ActionScript**, then click **OK**. You should be taken to **Symbol Editing** mode. Go to **Window>Library** to open the library.



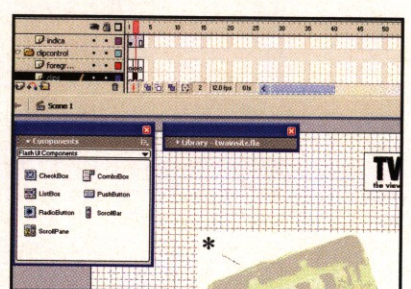
3 We've packed the library with most of the bits you'll need to complete this tutorial; all you have to do is assemble them in the right order. Drag and drop the file `disclaimer.gif` from inside the library's `clipelements` folder to the stage.



4 You now have a movie clip containing an image. Return to the main stage (clicking on the Scene 1 link in the top-left corner is a quick method) and go to the timeline. Open the folder named clips and select the second keyframe in the clipcontrol layer. Drag and drop an instance of the image disclaimer.gif (not the movie clip) to the stage.



5 It's huge! You should resize it to 400x300 using the width and height boxes in the Properties panel. Next, set the X co-ordinates of the object to 165, and Y to 155. Go to Window>Components and select 'Flash UI Components'.



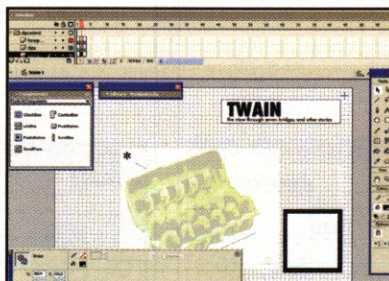
6 Right at the bottom of the list you'll find the ScrollPane Component. Drag and drop an instance to the stage. Using the Properties panel, resize the panel component to 130x180 and position it at X 585, Y 315. Give it the instance name 'scrollpane' while you're at it.

Component parts

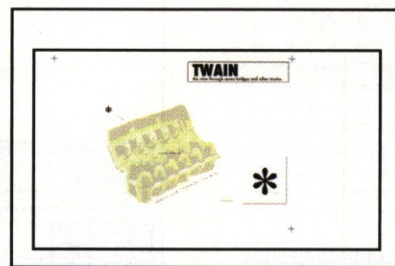
When you add the scroll pane component to your site, you'll notice that the number of items in your library takes a significant leap. The Scrolling Pane component is a good example – adding more than 60 parts to your library. That's one of the reasons why it's important to put your library elements into separate folders.



- 7 In the Properties panel, select the Properties tab if it's not already active. Click on the Scroll Content entry and type in 'disclaimer'. Set the Horizontal Scroll and Vertical Scroll entries to false. Set the Drag Content entry to true.



- 8 Click on the second keyframe within the background layer of the clips folder on the timeline. Draw a black square with the stroke set to none, and with dimensions of 150x140 position it centrally behind the ScrollPane component.



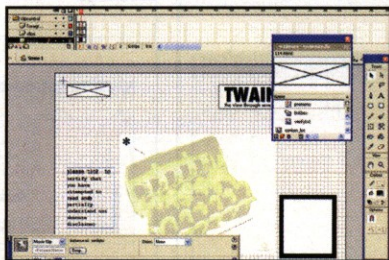
- 9 Hit Ctrl+Enter in Windows or Command+Enter on the Mac to test your movie. You should now have an image with a small box next to it. Click and drag within the box and you'll see that it contains a highly magnified version of the main image.

Part 3: Moving on

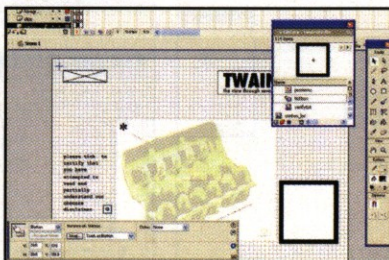
Those navigation buttons still need scripting – but first we have to get there...

Labels

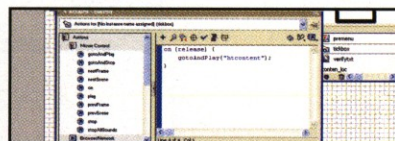
Look in the timeline folder 'globalcode' and you'll see layers labelled 'actions' and 'labels'. We've already placed 'stop()' actions on keyframes 2 and 3 of these layers, corresponding to the disclaimer content and the main content that we create during this tutorial. These frames also have labels, 'disclaimer' and 'htcontent' that allow us to refer to them by label name in any scripts we create.



- 1 Return to the clips folder. Select the second keyframe in the background layer. Drag and drop an instance of the movie clip 'verifytxt' from the library to the stage. Position it left of the current content. Drag an instance of the graphic symbol 'premenu' and position that at X 30.0 Y 30.0.



- 2 Click on the second keyframe in the clipcontrol layer and drag an instance of the button 'textbox' to the stage. Position it in the bottom-right corner of the 'verifytxt' movie clip. Right-click on the button (or Ctrl-click on the Mac) to bring up the context-sensitive menu. Select 'Actions'.



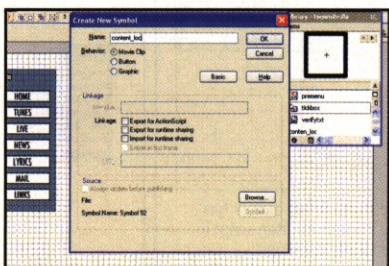
- 3 Click on the menu dropdown icon in the top right of the Actions Editor and choose Expert mode, then type the following code into the window:

```
on (release) {
    gotoAndPlay("htcontent");
}
```

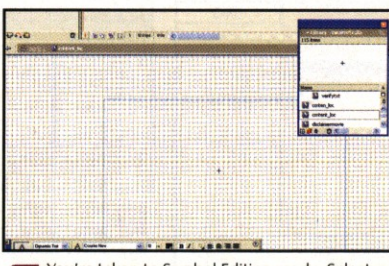
'htcontent' is a frame label we placed in the base file for you. Now we're going to add content to the frame that button will take your users to.

Part 4: External content

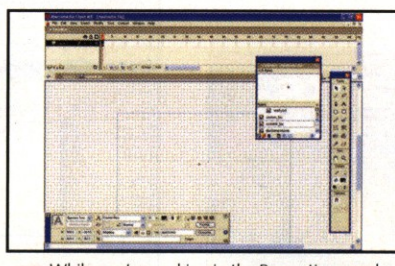
Make a movie clip that can handle HTML formatting – and the external content that will go into it...



- 1 Still in the clips folder on the timeline, select the keyframe at frame 3 of the clipcontrol layer. One thing you'll immediately notice is that the navigation menu we made last issue is in this frame. Go to Insert>New Symbol to create a new symbol. Make it a movie clip and call it 'content_loc'.



- 2 You're taken to Symbol Editing mode. Select the Text tool. In the Properties panel, set Dynamic Text and click 'Multiline'. Drag out a text box on the stage, approximately 560x420 pixels. When you've drawn the box, select it with the arrow cursor and use the Width and Height boxes in the Properties panel to set those dimensions exactly.



- 3 While you're working in the Properties panel, set the font to Courier New, size 12 and make sure the Selectable icon is toggled off. The Render Text as HTML icon right next to it should be toggled on. In the Var field, type 'dynContent'. This is a variable we've already embedded in the text files we've provided.

Part 4: External content, continued...

HTML formatting

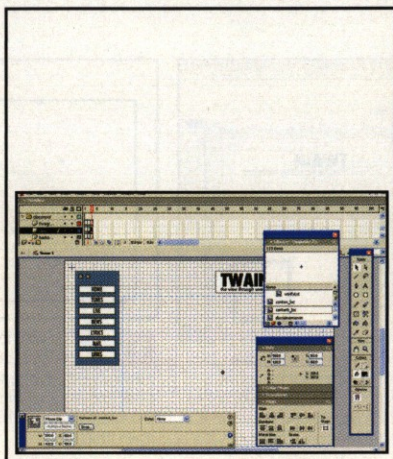
Flash has some quirks in the way it reads HTML from text files. Although it recognises and renders formatting elements like `<p>` and `<br>`, it also renders hard returns in your files as though they are new paragraphs. If you do put HTML formatting into external files for use in Flash, remove all the returns before you save the file.

Controlling clips

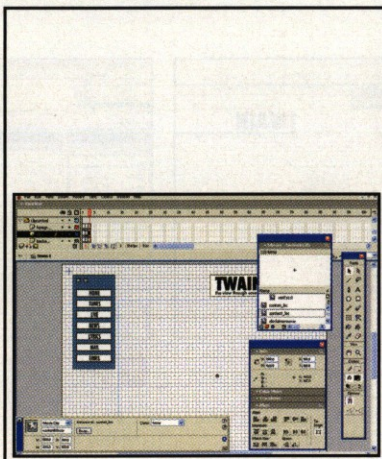
If you look at our finished file, you'll notice an extra line of ActionScript in the actions layer at the frame labelled 'htcontent':

```
_root.menuclip.gotoAndPlay("menclosed");
```

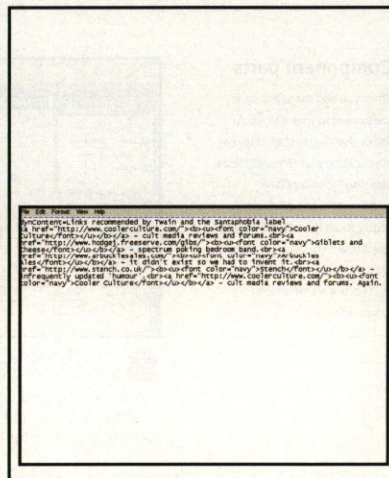
This action tells the item 'menuclip' in the main movie ('_root') to go to a specific frame when executed. The frame specified is an animation that closes the menu.



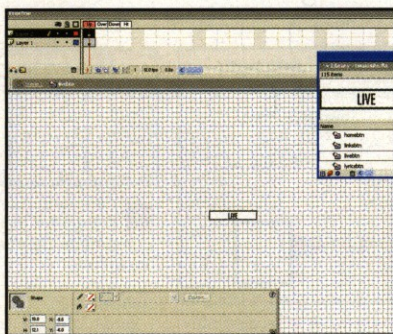
4 Before you return to the main stage, centre the text box in the document using the Align panel. On the main stage, with the third keyframe of the clipcontrol layer still selected, drag and drop an instance of the movie clip 'content_loc' to the main document. Position it at X 160 Y 100.



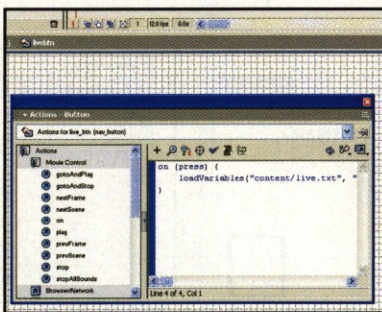
5 In the Properties panel, give the clip the instance name 'contentMovie'. This clip will be used to load HTML-formatted content from external text files. Before you can do that, you need to create the text files. Use *NotePad* in Windows or use *BBEdit Lite* on the Mac.



6 Flash's support for HTML is pretty limited. You can create hyperlinks with the `<A>` tag, use `<BR>` and `<P>` for formatting and use `<FONT COLOR>`, `<FONT FACE>`, `<FONT SIZE>`, `<I>`, `<B>`, and `<U>` to affect the style of the rendered text.

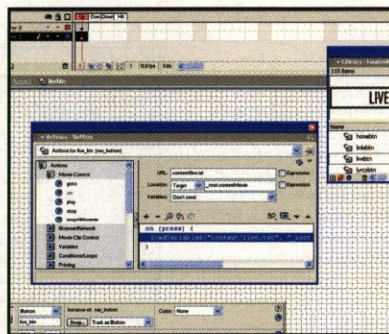


7 This isn't an HTML tutorial, so we've already created your necessary text files. All that remains is to attach the scripts that will load these files into the movie clip. The scripts will be triggered from the navigation buttons embedded in our menu. Go to the Library panel and find the first of these buttons, 'livebtn', in the MenuElements folder. Double-click on it to go to Symbol Editing mode.

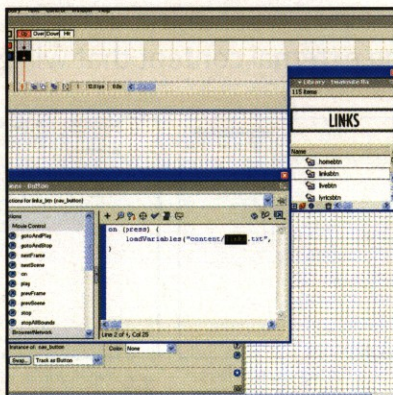


8 Select the button on stage and open the Actions Editor (if it's not already open). Type the following script directly into the editor in Expert mode:

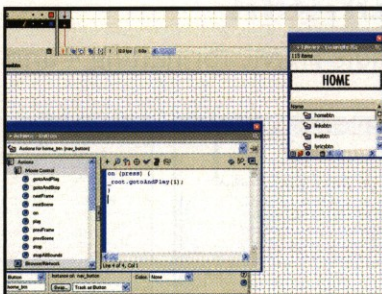
```
on (press) {
    loadVariables("content/live.txt",
    "_root.contentMovie");
}
```



9 Let's break down what this script does: on (press) is pretty obvious, while the loadVariables command selects some content to load into a variable container. The two items that follow in parentheses are, respectively, the relative URL to the location of a text file (live.txt) and the instance name of the movie we're targeting, which is contained in the root or main movie.



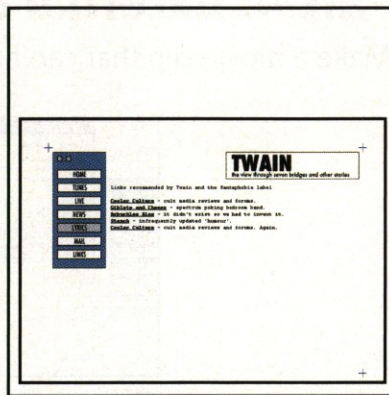
10 The buttons newsbtn, lyricsbtn and linksbtn function in the same way, so the easiest way to get them working is to paste the script from livebtn, changing the specified text file URL to news.txt, lyrics.txt or links.txt for the appropriate button.



11 Before testing whether your handiwork has been fruitful, there's one last button script to add. Select 'homebtn' and add the script:

```
on (press) {
    _root.gotoAndPlay(1);
}
```

This sends the playback head of the main movie back to the start.



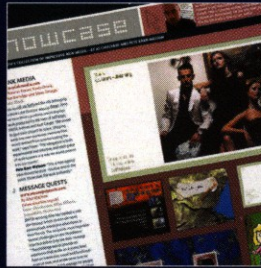
12 Test your movie by going to Controls>Test Movie; try hitting all the buttons to make sure you've entered the code correctly. Our finished version of the file is in the same folder as the tutorial files. Fire it up and see how they compare.



This tutorial on Flash MX was originally printed in issue 71 of *Computer Arts*, 2002. Keep on top of the latest Web design techniques by subscribing to *Computer Arts* and *Computer Arts Special* on page 46.

FOR NEW MEDIA DESIGNERS...

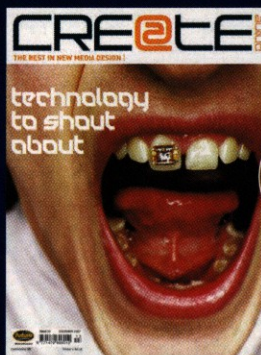
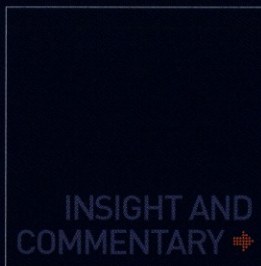
THE LATEST
SITES AND
PROJECTS ➤



➤ CREATIVE
INSPIRATION

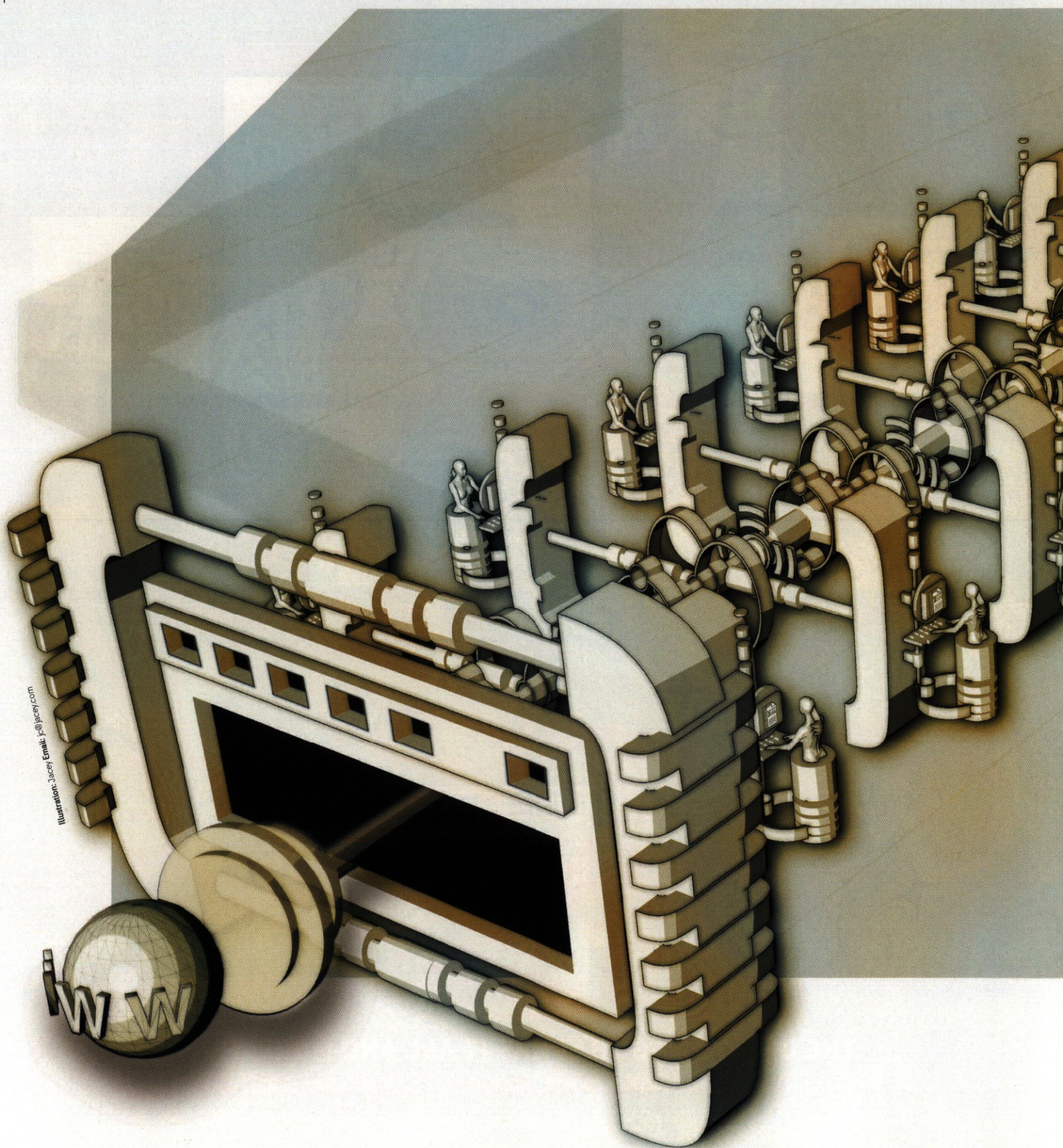


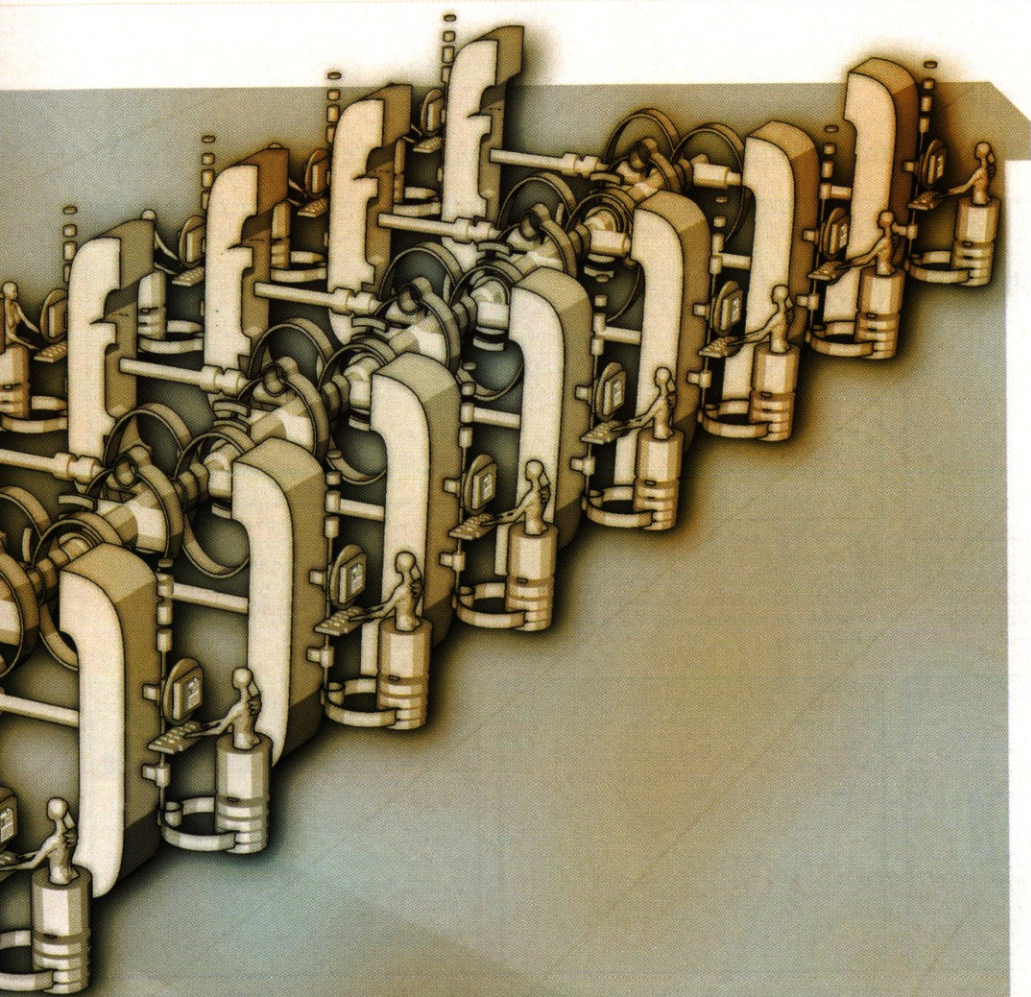
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Dreamweaver MX

The leading Web authoring and management software surpassed all expectations with its last release. We take you through the key features...



When *Computer Arts* reviewed *Dreamweaver MX* back in issue 71, it scored five out of five in all categories. Why? Because in terms of functionality and features this was no small-scale upgrade, with a list of enhancements that included the integration of *UltraDev* and the HTML editor *HomeSite*.

In this tutorial, we take you through the new features, tackling areas like the MX interface — something that will provide the first hurdle for even the most experienced *Dreamweaver* user. We've assumed some prior knowledge of *Dreamweaver* here — otherwise we wouldn't be able to even brush the surface of what is on offer within the MX upgrade. But new users should be able to keep up and see exactly how powerful this humble HTML editor has become.



On your CD

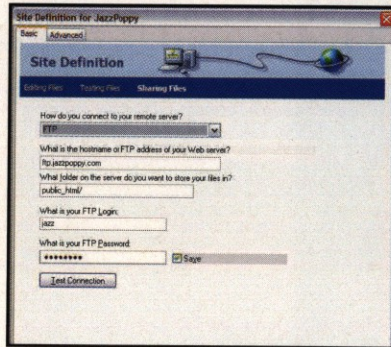
You'll find the assets for this tutorial on your CD in the folder Tutorial\Web\Dreamweaver. Visit the finished site at [w] www.jazzpoppy.com. Expertise provided by Chris Schmidt from London-based design and development company, track5: [t] 020 8519 3963, [e] chris@track5.co.uk, [w] www.track5.co.uk.

Part 1: Defining your site

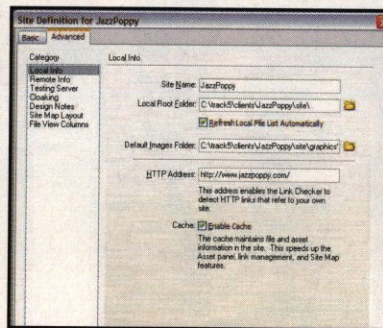
New users will find the new Site Definition Wizard a friendly way to configure your site's FTP details...

Thanks to...

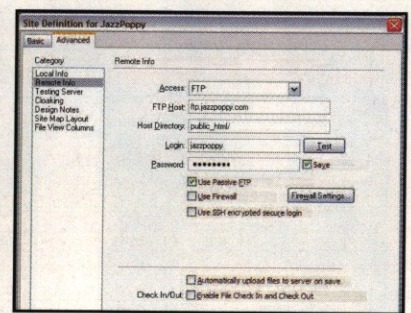
This tutorial is loosely based around the development of an actual site redesign for the singer JazzPoppy, which was carried out by track5. The finished site is very small and some of the features, such as templates, we use here are for illustrative purposes only. You can see the final site if you head to [w] www.jazzpoppy.com — we are grateful to JazzPoppy for allowing us to use this project as an example.



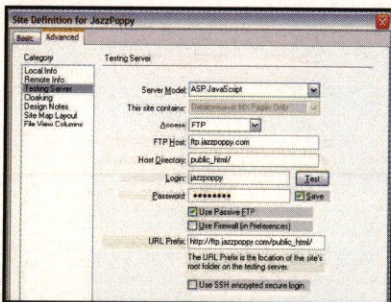
1 After you've copied the files from the CD, go to Site>New Site to prompt the Site Definition tool. Notice the tabs which provide access to the new Site Definition Wizard, which takes novice users step by step through the process.



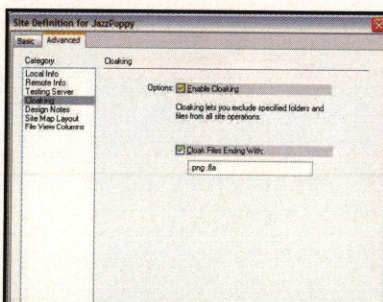
2 You can use this if you like, although existing Dreamweaver users will be more familiar with the Advanced tab. Complete the self-explanatory Local Information fields to let Dreamweaver know the local location of your files, naming the site JazzPoppy.



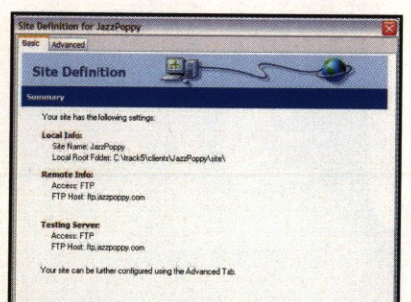
3 We can't give you Remote Access for obvious reasons, but take a look at the options available and you'll notice a few new features. FTP, for example, has a useful Test function, enabling you to make sure your settings work and make any changes necessary quickly without having to exit the interface.



4 The Testing Server tab is a new feature in Dreamweaver, enabling you to test sites that contain dynamically driven content. This is an early indicator as to how the software has evolved, with UltraDev now being merged to create the new Dreamweaver MX title.



5 Cloaking allows you to hide non-essential files; this is useful for Flash files, for example, as you can store the original FLA directly in the local directory, from where you can easily export the site's SWF file without having to worry about accidentally uploading the source.



6 If all this seems too complicated, then you can easily toggle over to the Basic tab and run through things using the Site Definition Wizard. This provides access to Dreamweaver's Help files, which explain things in more detail and then flip back to Advanced mode for more specific tweaks.

Part 2: Start building

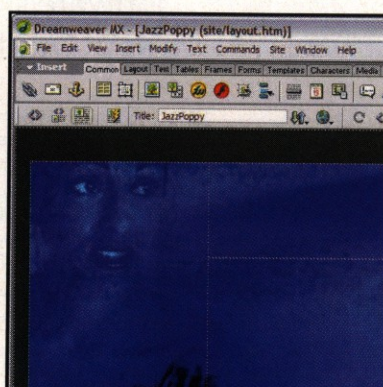
Take a look at Dreamweaver MX's design features through the creation of a simple page template...

Files palette

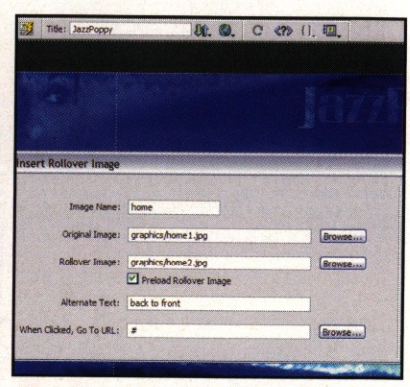
If your screen size and resolution allow, it might be worth considering dragging and separating your Files palette to the left of the interface. As well as freeing up space among the palettes, this enables you to have constant and easy access to your site's assets, and Dreamweaver will automatically save your palette layout on exit.



1 From Dreamweaver's main interface, make sure you have the JazzPoppy site selected and open the layout.htm file. Most of the page has already been constructed, but we need to add the Home rollover graphic to the top-right corner.



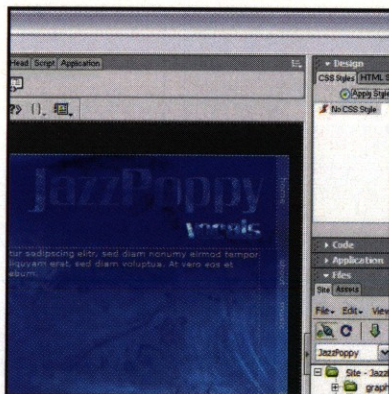
2 Delete the grey placeholder graphic and take a look at the Insert bar along the top of the interface. This replaces the Objects palette, offering similar features but in an improved layout that allows more immediate access to more tools.



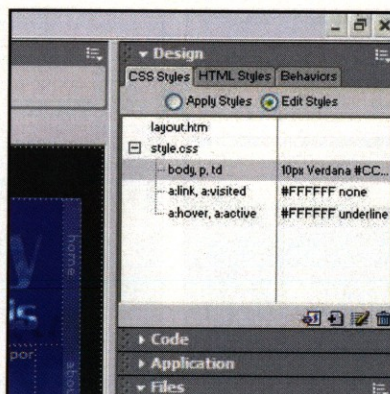
3 With the cursor on the page where the placeholder was, click the rollover image button to prompt the familiar tool. Complete the details using the home1.jpg and home2.jpg graphics as the normal and over states respectively, before clicking OK.

Extra space

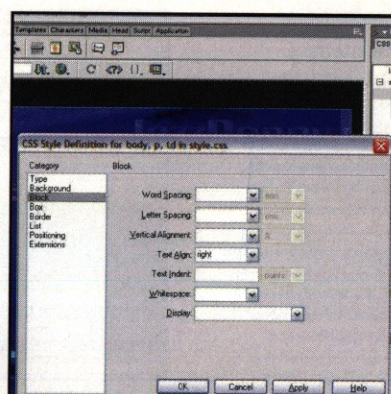
If your screen real estate is on the small size, and is restricting you from seeing your complete layout, you can slide the palettes out of the interface using a button in the middle of the bar, dividing the main window from the palettes. Alternatively, you could toggle the F4 button to lose everything, including your Insert bar and Properties Inspector.



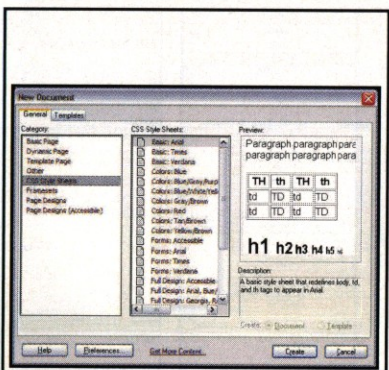
4 We now have the basic page layout needed for our template. Dreamweaver MX has improved handling for CSS files, which is what we'll look at next. Enter some random text into the main body part of the layout, and include a link using # as the location before expanding the Design palette.



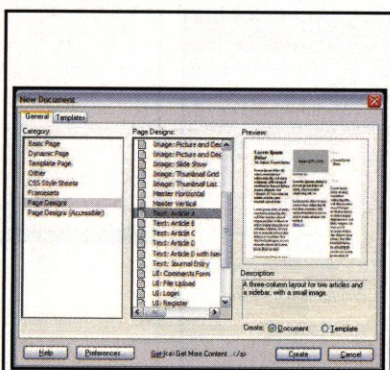
5 You'll notice that we've already put a basic style sheet in place, but we need to align the text to the right. Toggle over to the new Edit Styles mode and you're presented with a summary of each of the CSS commands, making it much easier to get an overview of your style sheets.



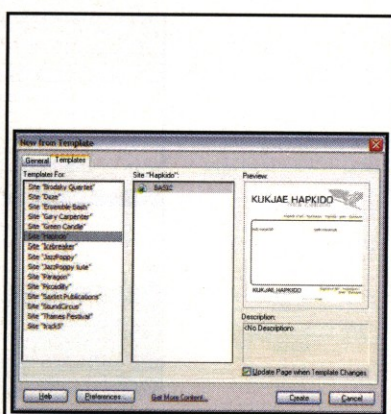
6 As all the relevant text attributes are contained within the BODY, P, TD property, a simple double-click will bring up the options available to you. Select the Block options and set the Align properties to Right. Hit Apply to check your changes and then OK to save them.



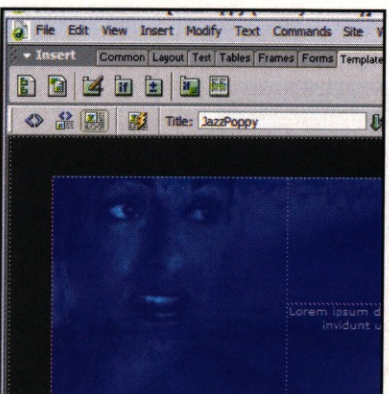
7 Hand-coding style sheets in such a way is effective and achieves the results you need, but if time is of the essence, Dreamweaver provides a range of predefined templates for you to choose from. Go to File>New to prompt the New Document options and select the Style Sheets option from the Category column.



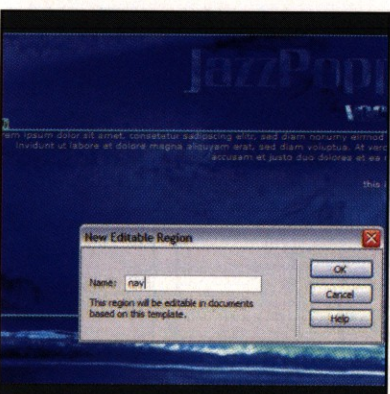
8 You can now browse through a range of CSS files that may provide the core styles you require, which can then be further edited in the Design palette's Edit Styles mode. Similarly, you can also choose from a range of page layouts or framesets that may provide initial inspiration for developing new pages.



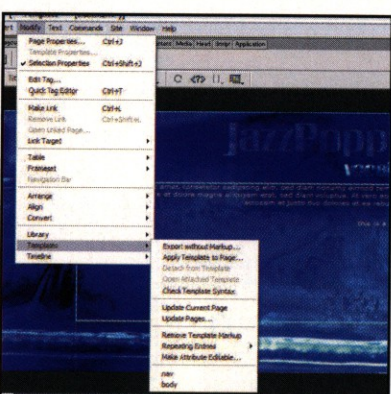
9 Once a site has been made available to Dreamweaver, the New Document window also provides instant access to any of your configured site's Template files through the corresponding tab.



10 One of the many new features found on the Insert bar that weren't available through the Objects palette is Templates. This provides instant access to a number of existing and new features, from the basic Adding Editable Region to the more dynamic Repeating Table and Region settings.



11 For our page, select the central table cell using Ctrl-click (Apple-click on Macs) and click on the Editable Region icon. Dreamweaver converts the page into a template and prompts you for a title for that region; call it Body. Repeat this step with the cell holding the navigation, calling it Nav.



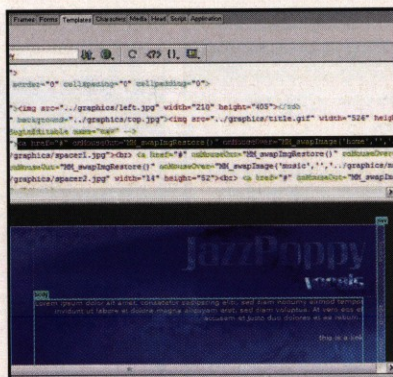
12 Although File>Save as Template creates a suitable template for such a small site, many of UltraDev's dynamic properties are now available. The Insert bar provides access to many of the more common features, but delving into Modify>Templates provides more powerful options.

Part 3: Under the bonnet

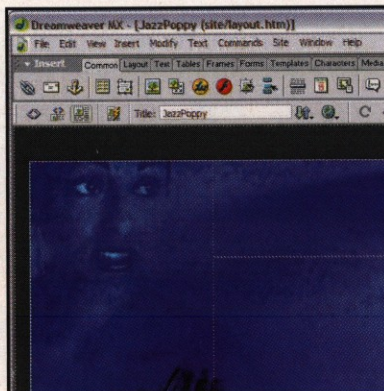
With the integration of *UltraDev* and *HomeSite*, you get improved coding and development support...

Customising the interface

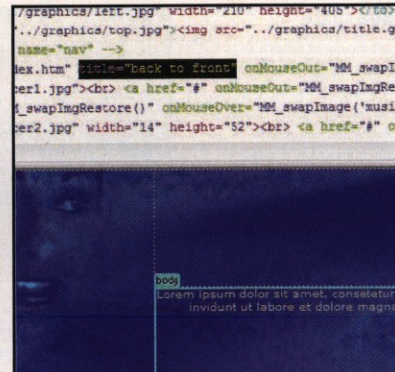
If you come from a coding background, you might want to consider changing the interface to suit your purposes — something better than the design-biased default. Go to Edit>Preferences and select the General category. This provides an option to change the workspace to one that compares with Allaire's *HomeSite* HTML editor. You'll need to reboot *Dreamweaver* to see the changes, and you can revert back using the same method if this isn't to your preference.



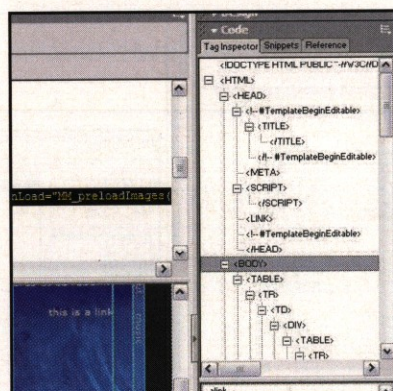
1 Open the template we created and jump into *Dreamweaver*'s split-screen design/code view. To illustrate *DW*'s coding strengths, we're going to make some changes directly to the code. Click on the Home graphic in the design pane and scroll through the code to find its surrounding Anchor tag, setting a location of index.htm.



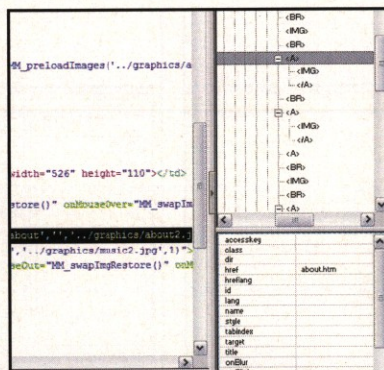
2 Move the cursor outside the link location and hit the spacebar. *Dreamweaver* automatically recognises that you are adding a new attribute and provides contextual options. Start typing Title and notice how your options are filtered accordingly. Once Title is displayed, hit the Return key.



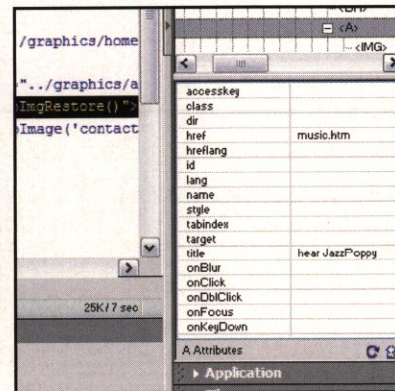
3 The rest of the attribute is automatically entered, and the cursor placed in empty quotation marks ready for you to enter your chosen properties. This feature will be familiar to *HomeSite* and *ColdFusion* users as a huge time-saver, as well as offering intelligent options relevant to the code in context.



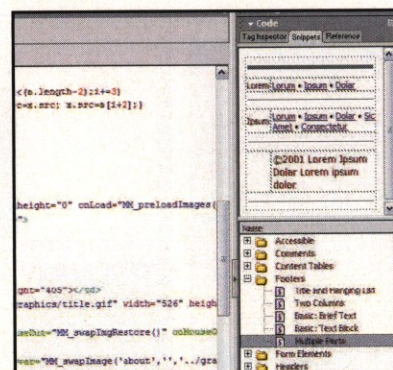
4 Another time-saver when hand-coding is found in the new Tag Inspector palette. Expand the Code palette, bring the Tag Inspector to the front and you're presented with a hierarchical list of your file's major tags. This provides an overview with instant access to individual tags.



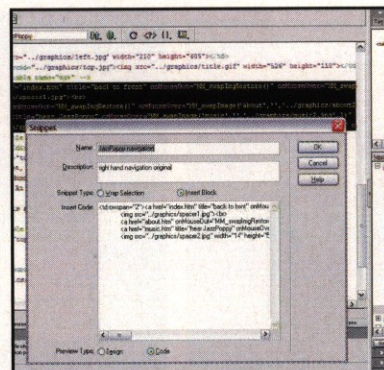
5 Using this method we can work totally in *Dreamweaver*'s Code view, and quickly find the remaining links within our navigation. Enter the Show Code View mode and scroll through the Tag Inspector to locate the remaining <A> tags. Change the first # location to point to about.htm from the attributes offered below the Tag Inspector.



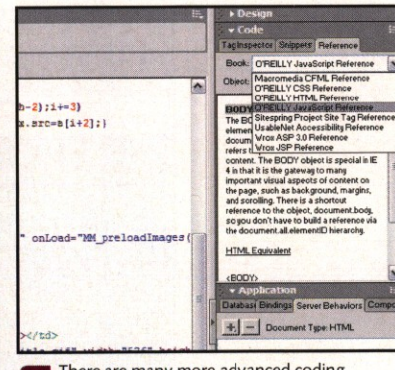
6 Repeat this step for the Music and Contact pages, pointing them to music.htm and contact.htm respectively and remembering to enter suitable Title attributes while you're there. *Dreamweaver* will automatically insert the correct code in the relevant location.



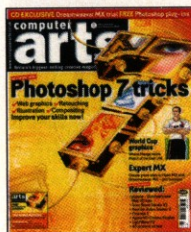
7 Also under the Code palette, another new feature borrowed from *HomeSite* and *ColdFusion* can be found. The Snippets tool enables coders to quickly save segments of code for later use; these can range from simple functions to complex layouts, which are then made available across different projects.



8 If we were to save the editable region, containing the JazzPoppy site navigation as a snippet for example, we would simply have to highlight the code and create a new snippet using the icons at the bottom of the palette. The code is transferred, and you can have named and insertion methods defined.



9 There are many more advanced coding features which will interest Web developers, but *Dreamweaver MX* provides too huge an upgrade to allow much more detail here. However, with the expanded range of reference titles now including *ColdFusion*, ASP, JSP as well as *SiteSprig* and *Usability* advice, you'll soon be wondering how you managed without it.



This tutorial on *Dreamweaver MX* was originally printed in issue 72 of *Computer Arts*. 2002. Get *Computer Arts* and *Computer Arts Special* delivered direct to your door by subscribing on page 46.

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Flash games

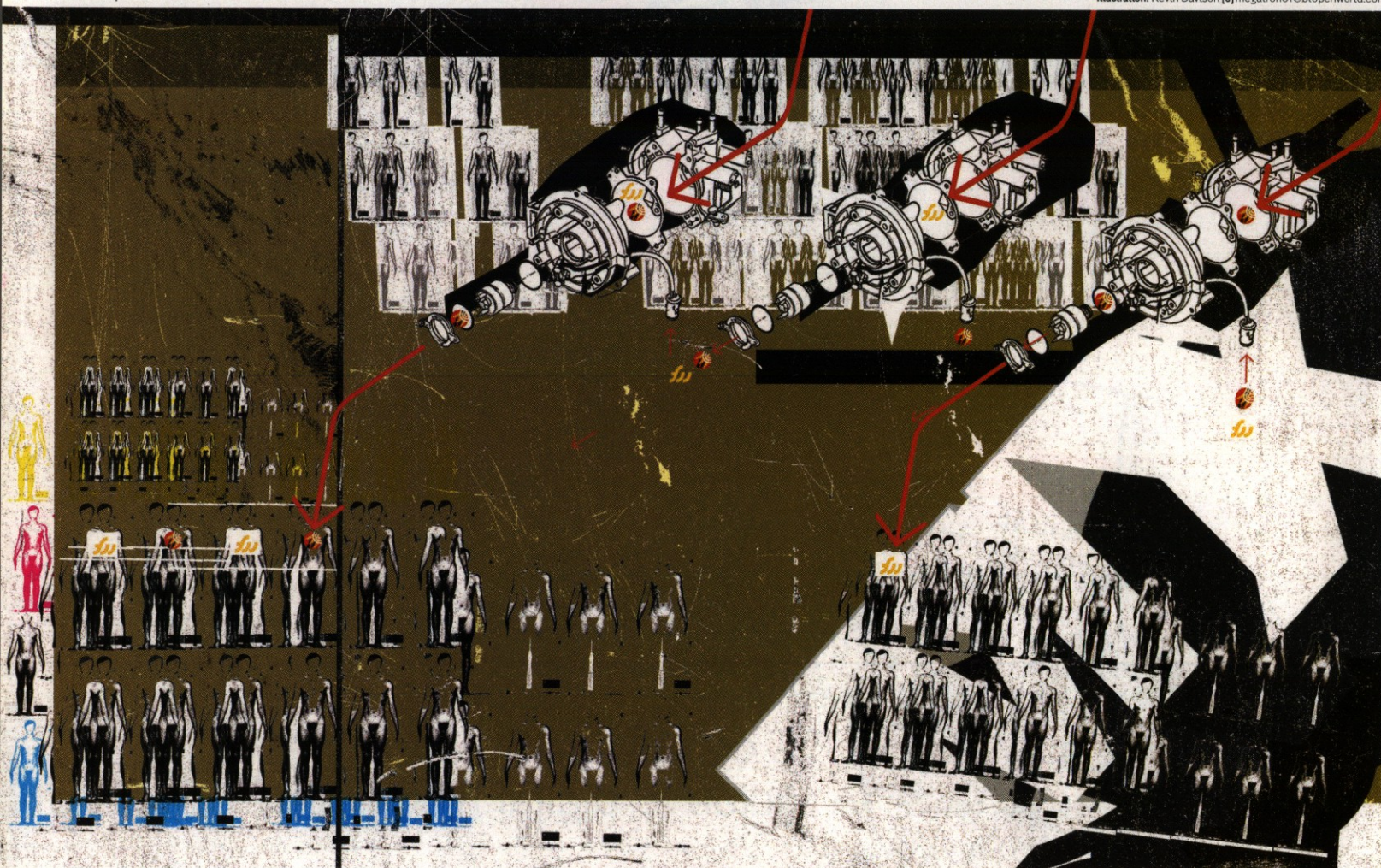
Create your own Flash games
with our in-depth guide

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Site prototyping with Fireworks MX

Need to turn your client's brief into something they can see against a tight deadline?
Fireworks MX has the right tools for the task...



Expertise supplied by Karl Hodge. Contact Karl on [e]khodge@spodgod.com



Files on disc

The files you need to complete this tutorial are on the coverdisc in the folder Tutorial\Web\Site Prototyping.



If you're one of the many designers out there scrambling for the limited amount of work that's

available, you'll know that first impressions count. You need to be able to show you can do the job and, as far as clients are concerned, that means pulling together pages that can impress as quickly as possible. If you use *Fireworks*, you'll have a headstart. Macromedia's combination of Web graphics package and authoring tool

gives you all the power you need to create page layouts that work convincingly, without having to open another package.

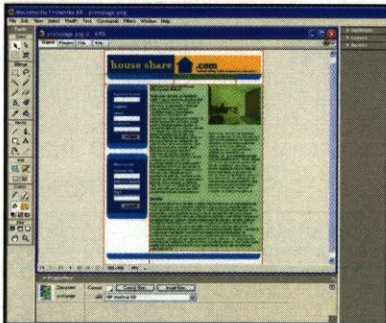
Here, we'll help you land that all-important job by using *Fireworks* to create a page layout as a presentation prototype — the kind of thing you'd show to clients before building their site from scratch. Next, we'll mock up the rest of the page for display in a browser, complete with interactive elements for you to present to clients.

Part 1: Layout design

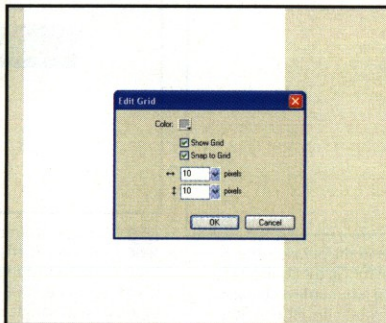
Fireworks is so easy to work with that you can use it like a virtual sketchpad to draw a rough layout...

Quick colouring

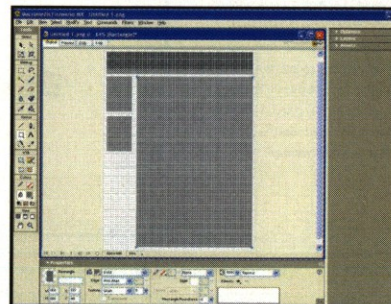
If you use the file *colourscheme.png* from the CD to create a scheme for your page, leave the window open as you design your layout. You can easily sample colour using the Eyedropper from the colour scheme image.



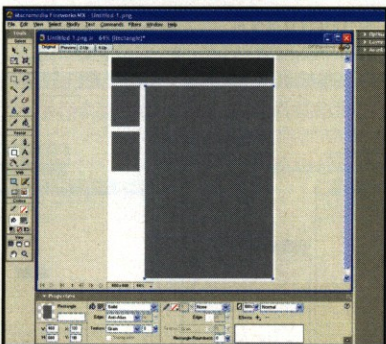
1 In this tutorial we want to create a prototype site that we know will have several components: a header containing a logo, four navigation buttons that lead to pop-ups, two panels for entering user details and a large content area.



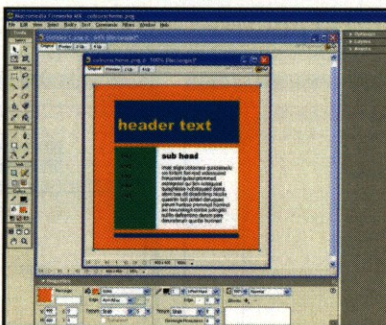
2 We start by creating a new document at 600x800, then go to View>Grid>Edit Grid. In the Edit Grid dialog, set the grid dimensions to 10x10 and tick the Show Grid and Snap to Grid boxes. Change the default grid colour to a light grey.



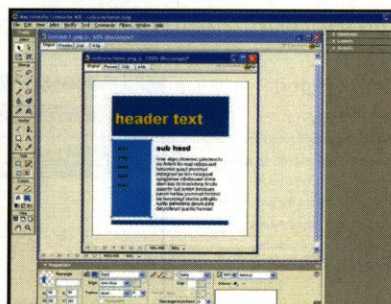
3 Set the magnification of your document so that you can see it all. Select the Rectangle tool from the toolbar and use it to block out where you want to place the key components of the page. You can use this stage to decide how much space to allocate to each element and where to place it.



4 We arrived at a classic layout, with a drop-down navigation bar under the header of the page and further navigation on the left side in a pair of floating panels. Now you can begin to decide on a colour scheme.



5 In many instances you'll be following the colour scheme of a logo or from a brief. Even then you need to decide where to use which colour. We've arrived at a handy solution. Open the file *colourscheme.png* from the Tutorial\Web\Site Prototyping folder on the CD.



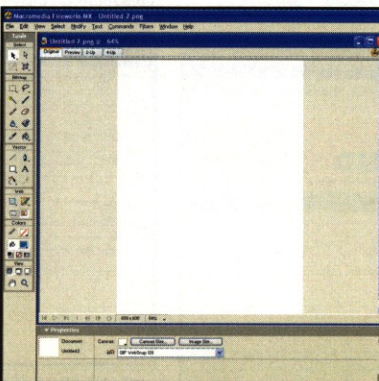
6 This PNG file is a mini-page layout, including most of the common components of a standard page layout. Go to Window>Swatches to open the colour palette and apply colour to the objects in this file. You can use this method to decide on a colour scheme before creating your 'real' page.

Part 2: The logo

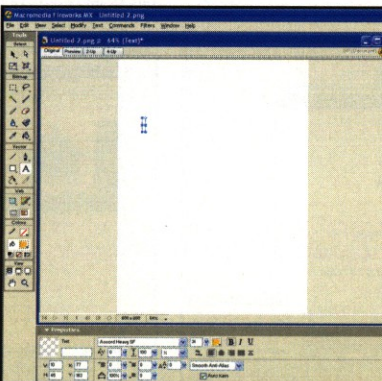
Use *Fireworks'* drawing tools to create a logo for the prototype site...

Close-up

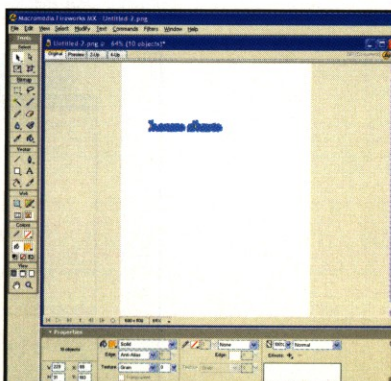
You can set the magnification of the current document using the magnification drop-down at the bottom of the document window. After you've created the initial layout it's handy to be able to zoom in on sections as you work.



1 Our next task is to develop a logo for the site, and that gives us an opportunity to explore some of the drawing tools in *Fireworks'* arsenal. We used our block layout document to continue development, but you can begin this section in a new document with the dimensions set to 600x800.



2 Select the Text tool and go to the Properties panel. Choose a chunky, serif font from the Font drop-down, set the size to 36 points and the colour to #FFCC00. Make the style Bold. When you've finished setting up the text attributes, click on the stage to activate the text cursor.



3 Type in the words 'house share', then select the Arrow tool. Select the words you've just added to the stage with the Arrow tool, then go to Text>Convert to Paths. This changes the text to vector shapes. Go to Modify>Ungroup to separate the individual letters. >

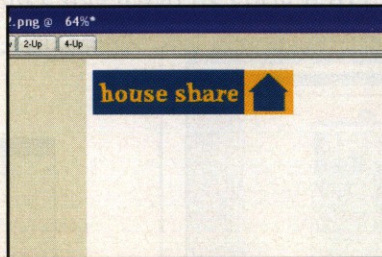
The logo, continued...

Quick symbols

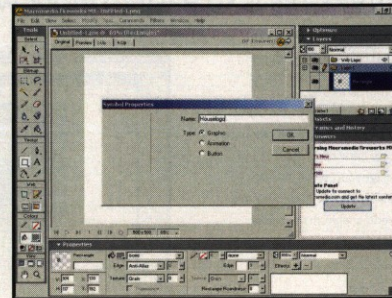
Instead of dragging a new symbol instance from the library every time one is required, click and drag on an instance of the symbol on screen while holding down the Alt key (Ctrl on the Mac). This duplicates the symbol, creating a new instance.



4 Click on the first letter in the phrase – the 'h' – then choose the Scale tool in the toolbar. Hover the cursor near the selected letter until it changes to show the Rotate tool, and rotate the letter a few degrees. Repeat the process by selecting random letters in the logo and rotating them just a little.



5 Marquee around the edited letters and hit Command/Ctrl+G to regroup them. Place the logo against a rectangular background, 250x70 pixels, coloured #006699. The rest of our logo is made with a triangle and square, forming a simple house shape, set against a 70x70 square coloured to #FFCC00.



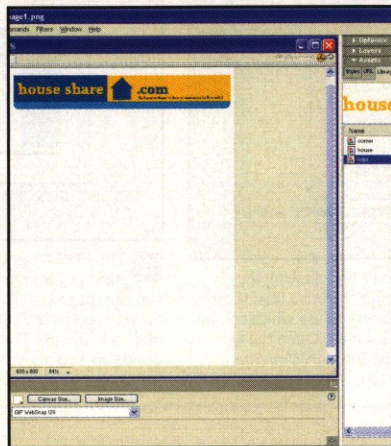
6 Select the components of the house image and group them together. Go to Modify>Symbol>Convert to Symbol. We'll be using the image repeatedly throughout our design, and converting it to a symbol makes that much easier to do.

Part 3: Dropdown menus

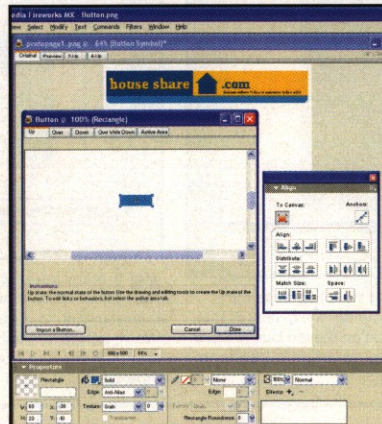
Dropdown menus are easy to add in *Fireworks MX* – no coding required...

Quick Export

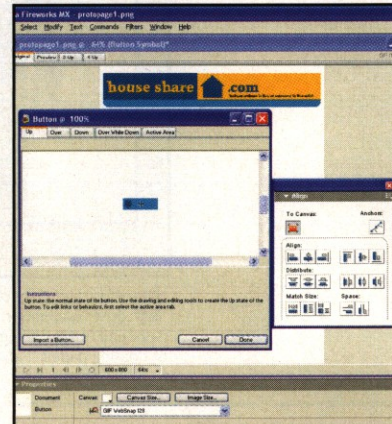
In *Fireworks MX* you can export the page directly to *Dreamweaver MX* format using the Quick Export button in the top-left corner of the document window. You can also save the file for export into *Flash*, *FreeHand* or *Director*.



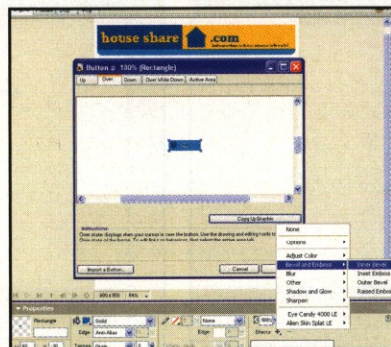
1 To speed things along a bit, open up the file *protopage1.png* from the CD. This file contains a simple header for our document with the logo in place. We'll use this to create buttons and insert pop-up menus.



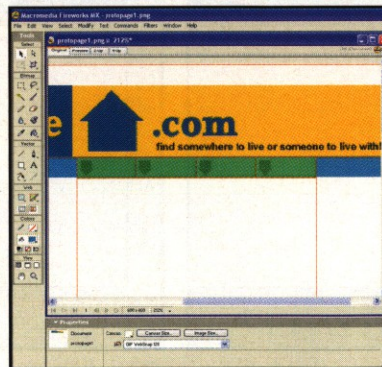
2 Right-click (or Command-click on the Mac) over an empty part of the stage to bring up the context-sensitive menu. Choose Insert New Button. You are taken to the Button Editor. Draw a rectangle at 60x20 pixels and centre it using the Align panel (accessible from Window>Align).



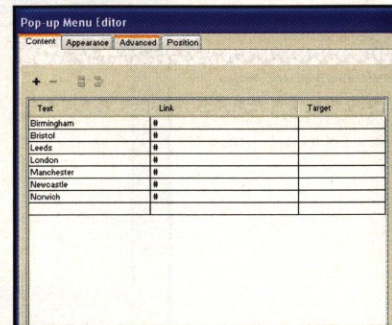
3 Open the Library (Window>Library) and drag and drop an instance of the house symbol to the Button Editor. While the symbol is selected, go to the Properties panel and resize it to 15x15 pixels. Go to Modify>Transform>Flip Vertical and position the symbol on the left of the button.



4 Add button states for the Over and Down conditions of the button. Use the tabs to navigate between states and the Copy Graphic button to transfer the previous image to the current state. Altering effect parameters is a good way to make subtle variations between conditions.



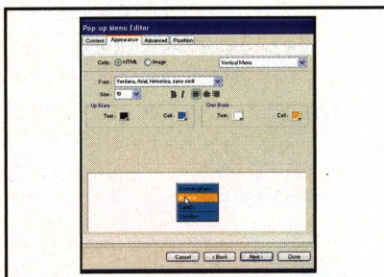
5 Drag the newly created button to the light blue strip under the header of the page and position it under the house symbol. Drag a further three instances of the button from the library and position them consecutively alongside the first.



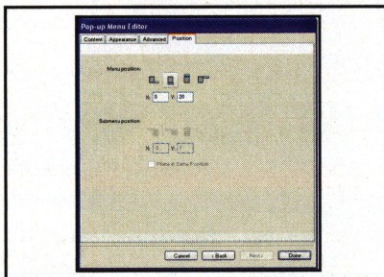
6 Select the first button and go to Modify>Pop-up Menu>Add Pop-up Menu. You are taken to a dialog box divided into four tabbed sections. In the Content section, there are three columns. In the first column, type in the menu entry you wish to display; in the second, type the associated URL. In our example we add the names of several cities.

Temporary solution

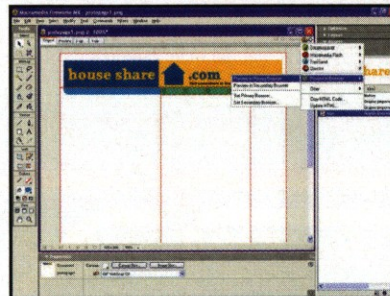
While prototyping, the pages your navigation system needs to point to may not actually exist yet. To avoid getting error messages when a client clicks on the available options, replace the URL in links with a hash sign (#).



7 Click on the Appearance tab. Here you can use HTML, or a combination of HTML and images to build a menu. We set ours to use HTML only, with text at size 12. We used the colour scheme we'd devised to set the Up State cell colour to #006699 and the Over State colour to #FFCC00.



8 The Advanced section enables you to edit individual table attributes. Finally, click on the Position tab. Select the Set Menu position to bottom of slice icon, the second button along, and click Done to finish. We added similar menus to our finished file in the same way.



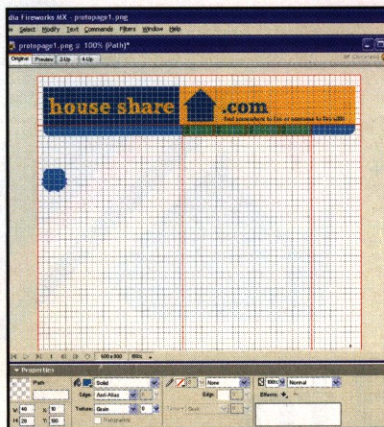
9 At this stage the pop-up menus should be fully functional. You can test them by previewing the page in your browser. To save the file as HTML at this stage would require inserting slice objects over the remaining pieces.

Part 4: Building the page

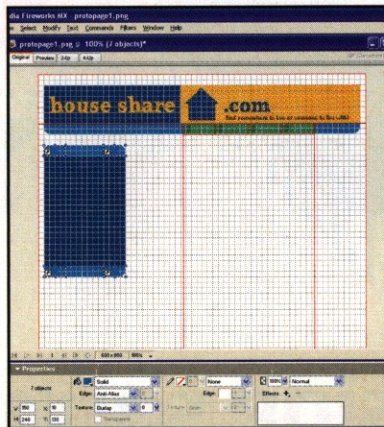
Mock up HTML content to mimic the look and feel of a finished site...

HTML slices

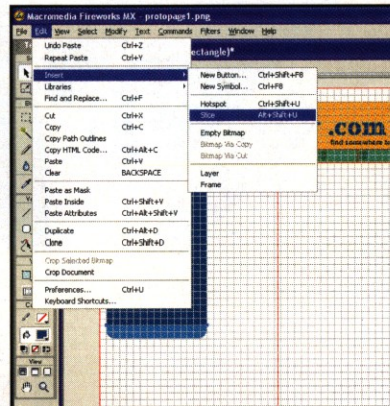
If you include references to images within HTML slices that you plan to use at the prototyping stage, remember to include the absolute path to the file. When you preview in a browser, a temporary file is created. Any relative paths within your document will fail.



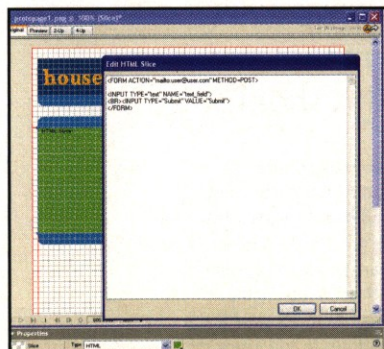
1 Our intention was to use Fireworks to bolt together a prototype page, and now we'll complete this quickly by using the drawing tools to create sidebars. The rounded corners were created by drawing rounded rectangles then splitting them using the Knife tool.



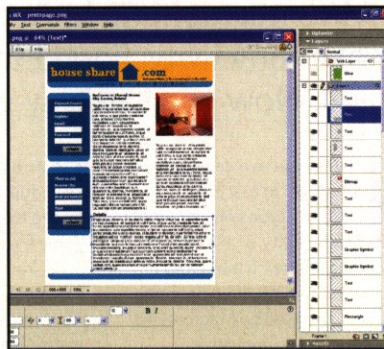
2 These corner pieces can then be reused throughout the design if they're transformed into symbols. Whenever a new rounded corner is required, it can simply be dragged from the library and dropped at the end of a rectangle of the same colour.



3 For the purposes of creating a page for presentation, we mocked up form input sections of the page; however, there is an alternative. Fireworks MX allows you to replace slices with HTML. Select the area you want to replace first and convert it to a slice by going to Edit>Insert>Slice.



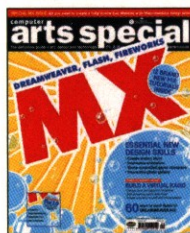
4 In the Properties Inspector choose HTML from the Type dropdown, then paste in the HTML required. You can develop the code in Dreamweaver and copy it direct to the clipboard. In our example, though, we finished off the input forms using the drawing tools.



5 The content area in our example was populated using sample text and a bitmap image. Again, Fireworks would have enabled us to insert HTML directly into this section. A rectangle could have been drawn covering the entire content area and then converted into a slice.



6 To display the Fireworks document as a prototype, go to the Quick Export button in the top-right corner of the document window and choose Preview in Browser from the menu. When displayed in your browser, the pop-up menu and rollover buttons work – as do interactive or animated elements.



This Fireworks MX tutorial was originally printed in issue 36 of Computer Arts Special, 2002 – an issue devoted entirely to MX techniques: Flash, Dreamweaver and Fireworks. Keep your Web skills up-to-date: turn to page 46.

Flash MX's microphone tools open up a new world of interactivity. Forget the mouse and keyboard. Now you can play with a shout...



Whether you're a designer who likes to test out different types of interactivity, or a Web designer looking to stretch the edges of the Internet envelope, you'll no doubt be intrigued and impressed by Macromedia *Flash MX's* deliciously innovative microphone tools. In this tutorial, Stockholm's Perfect Fools shows how it used the new features to craft a simple platform game with a twist. In *CrashBaby*, you help your 'baby' navigate

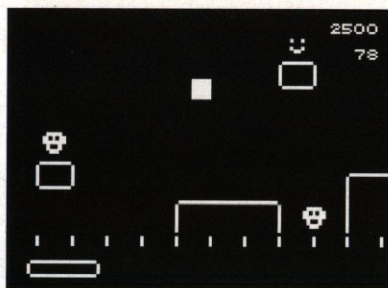
You'll need at least a basic proficiency with *Flash MX*. Before starting, install the freeware typeface Pixel included on the cover CD.

Part 1: Structuring the movie

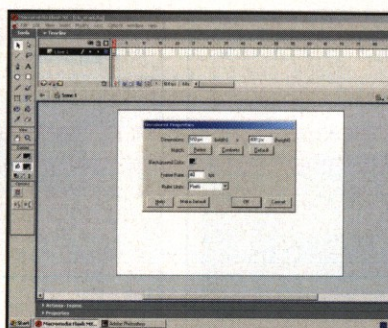
A few quick steps get your game off to a good start...

All-in-one clip

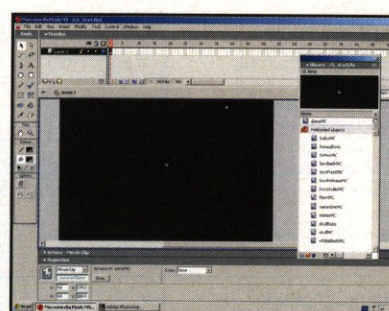
Perfect Fools structures its *Flash* movies with everything in one master movieclip at frame 1 on the main timeline. Why? Because of *Flash*'s infamous 'Failed to save' bug. Occasionally when working intensively with an FLA file, a request to save is met with the cheeky response: "Failed to save document." With everything in one clip it's easy to copy over to a new file.



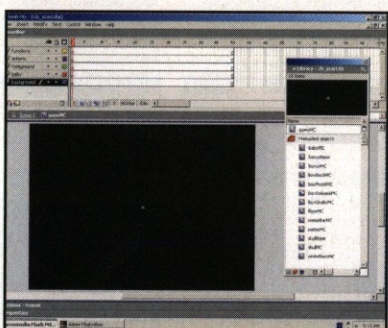
1 Throughout this tutorial we refer to files found in the Tutorial\Web\Flash Sound folder on the cover CD. A copy of the finished game, complete with lots of helpful ActionScript comments, is also included on the CD (filename *cb_final fla*). When you've finished, your game should look like the above image.



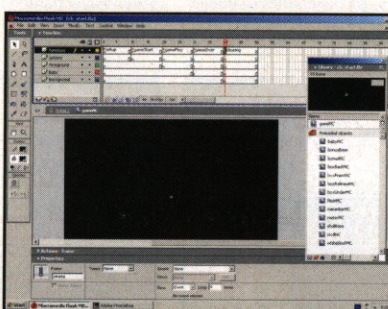
2 Begin by opening *cb_start fla* from the cover CD. This file contains most of the graphics you'll need to build your game. Under *Modify>Document*, set Background Colour to black and Frame Rate to 40 frames per second.



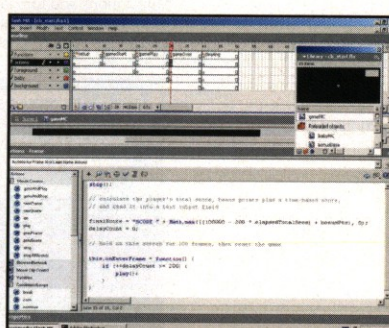
3 Create a new symbol with *Insert>New Symbol*. Name the symbol *gameMC* and choose *Movie Clip Behaviour*. Return to the Scene 1 timeline, open the Library, and drag *gameMC* into frame 1. Using the Properties Inspector, set *gameMC*'s position to X:275, Y:200.



4 Double-click on *gameMC* to edit it in place (a small circle will indicate the movieclip's position in the middle of the stage). Once inside add 49 blank frames and four new layers. Rename the layers, from top to bottom: functions, actions, foreground, baby, background.



5 Add keyframes to your layers as follows: functions and actions layers, frames 10, 20, 30 and 40; foreground, 20, 30 and 40; baby, 30 and 40; background, 40. On the functions layer you need to label your five keyframes in order from left to right: setup, gameStart, gamePlay, gameOver, and clearing.



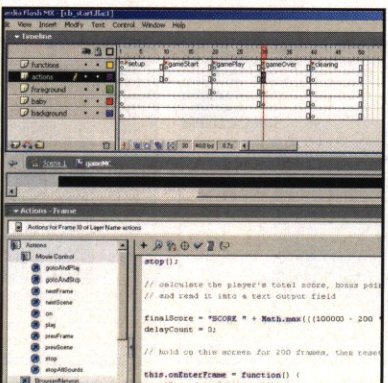
6 Now it's time to add some ActionScript. Select frame 1 of the functions layer, open the Actions panel, and paste in the script found in the file *6a.txt* on the cover CD. On the actions layer, add the script from *6b.txt* to frame 20, and *6c.txt* to frame 30.

Part 2: Building the platform game

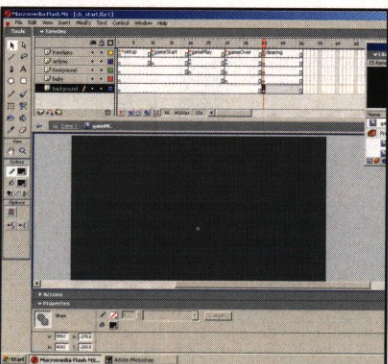
With the background player you can create hallway segments, which are pulled randomly during the game...

Mike issues?

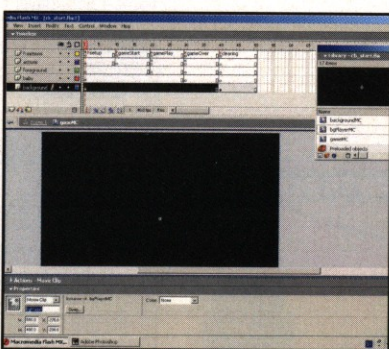
While *Flash*'s microphone functions are groundbreaking, they may have one or two quirks. When the movieclip containing the microphone stream leaves the timeline, objects from the previous keyframe sometimes (mysteriously) appear in the new keyframe. That's the purpose of *gameMC* frame 40: to 'clear' the screen before restarting the game. Another issue is when you change Record Volume in the microphone settings panel, the new level seems to last only temporarily.



1 Your game's structure is now largely complete. Frame 1 initialises variables and contains game functions. 10 is where the movie holds while waiting for new games to start. 20 manages play, while 30 handles the game ending (see the margin note 'Mike issues?' to learn what frame 40 is for).



2 Next, we need to construct the movieclip that animates the randomly changing background through which our baby moves. At background layer frame 40, draw a black rectangle with no outline. Set the rectangle's size and position using the Properties Inspector: W:550.0, H:400.0, X:-275.0, Y:-200.0. Copy the rectangle.



3 Paste the rectangle into frame 1. Choose *Insert>Convert to Symbol*. Name the symbol *backgroundMC*, Behaviour *Movie Clip*. Position *backgroundMC* at X:-275, Y:-200. Select *backgroundMC* and *Insert>Convert to Symbol* once again. Name the new symbol *bgPlayerMC*. In the Properties Inspector, give it the instance name *bgPlayer*.

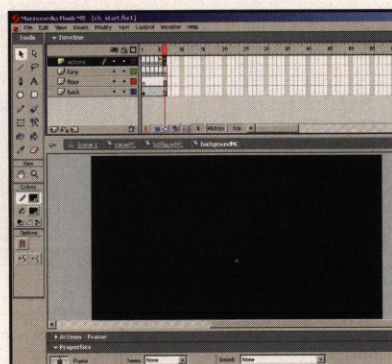
Part 2: Building the platform game, continued...

Platform engine

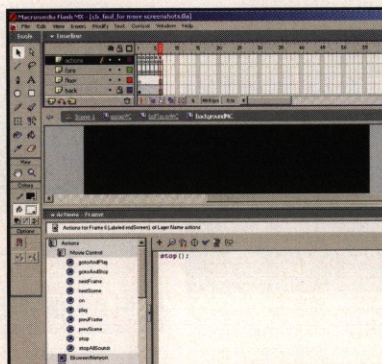
CrashBaby's platform engine is simple but flexible. Customise your own graphics to create an entirely different look. Add a layer to backgroundMC and place more advanced obstacle graphics over the existing barebones surfaces. The game shown here was built with the same engine.

No microphone?

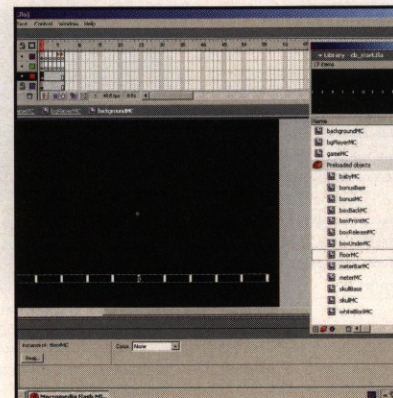
If you've got a pair of headphones, you can plug them into your mic adaptor and use them as a simple sound input.



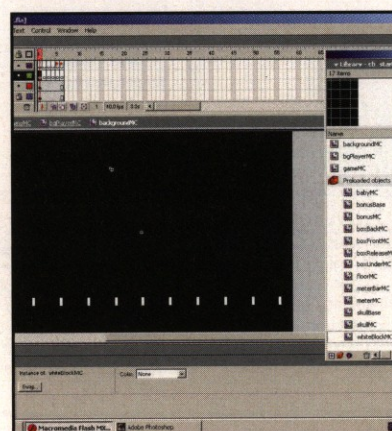
- 4** Double-click on bgPlayerMC to edit it in place. Repeat with backgroundMC. Insert five frames and three layers. Name the layers, from top to bottom: actions, fore, floor, and back. On both the actions and fore layers, add keyframes to frames 2-6. Frames 5 and 6 should be named startScreen and endScreen respectively.



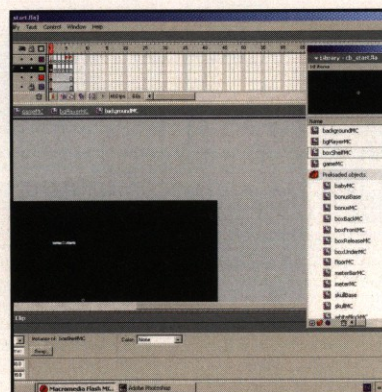
- 5** backgroundMC contains the game's various screens. startScreen and endScreen are for game start and ending. Frames 1-4 hold play segments, pulled randomly during the game. Go to actions layer frame 1, open the Actions panel, and type the action stop(). Copy this action to each of the other five frames.



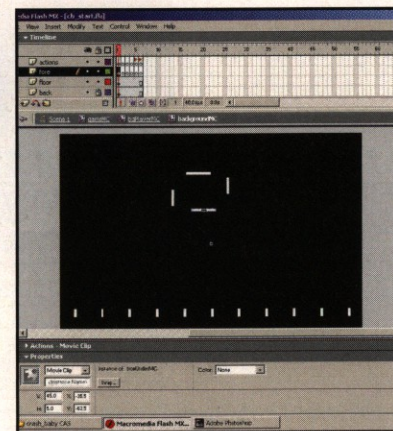
- 6** Now let's give our baby a floor to crawl on. First, since we'll be doing lots of work above it, lock the layer named back. Open the library and drag floorMC to frame 1 of the floor layer. Set floorMC's position to X:-250, Y:120.



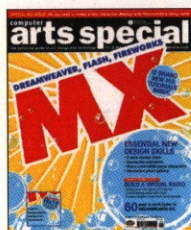
- 7** Next we want to add the surfaces over/around which the baby manoeuvres. Most of these are already in the library, but to show how these were made we'll create one from scratch now. Begin by dragging whiteBlockMC from the library to frame 1 of the layer fore.



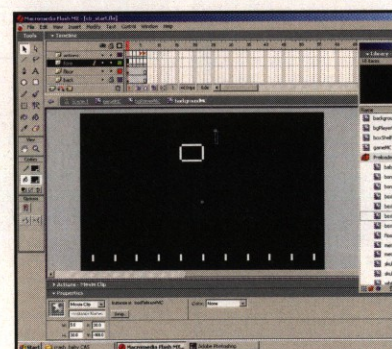
- 8** Selecting whiteBlockMC, Insert>Convert to Symbol. Name the symbol boxShelfMC. Double-click on boxShelfMC. Select whiteBlockMC and open the Actions panel. Paste in the ActionScript from file 14.txt. This controls how the surface interacts with the baby. Return to backgroundMC's timeline. Resize boxShelfMC to 45 pixels wide by 5 high.



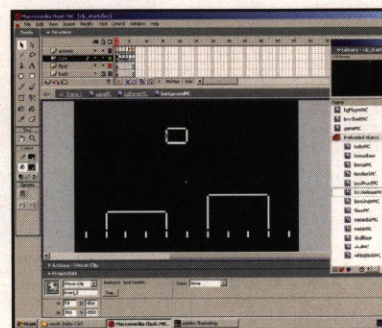
- 9** Along with a top (boxShelfMC) your obstacles need a front, back and - if they're not sitting on the floor - bottom. Drag boxFrontMC and boxBackMC onto the fore layer and size them to 5 pixels wide by 30 high. Add boxUnderMC, resized to 45 pixels wide by 5 high.



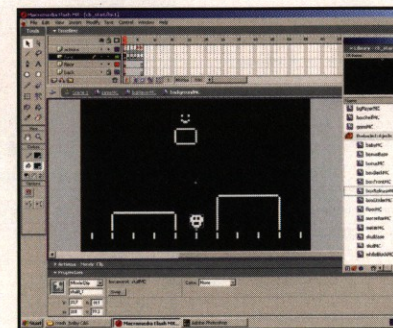
This tutorial on Flash MX's microphone tools was originally printed in issue 36 of Computer Arts Special, 2002. Get Computer Arts and Computer Arts Special delivered direct to your door by subscribing on page 46.



- 10** Arrange the four surfaces as a box, with corners almost touching. Position this group anywhere above the floor. Finally, add to the fore layer the object that tells your baby when to 'fall' off the obstacle. Position boxReleaseMC 30 pixels to the right of, and 35 pixels above, boxBackMC.



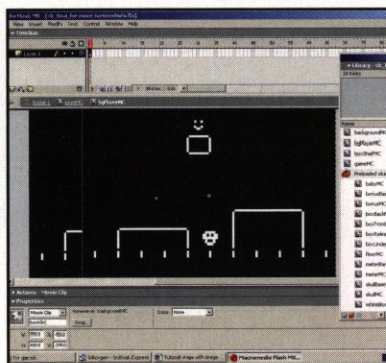
- 11** Copy this group and paste it as many times as you like throughout frames 1-4. Resize the surfaces to create a variety of obstacle environments (see cb_final.fla for examples). When you're done, give all of the surfaces unique instance names: front1_2 (for example, frame 1 instance 2), shelf3_2, under2_2, back4_3, etc.



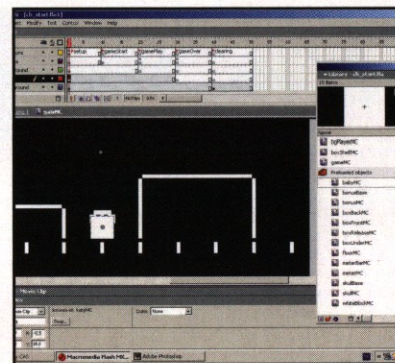
- 12** Now that your obstacle course is ready, let's add some bonuses and nasties. Drag bonusMC and skullMC onto the fore layer. As with the surfaces, you can copy these as many times as you like throughout frames 1-4. Just remember to give each instance a unique name: bonus4_3, skull2_1, etc.



13 Go to frame 6 (endScreen), fore layer. Create a text field with: Text type Static Text, Font Pixel, Font Size 40, colour white, style Bold, alignment Centre. Write GAME OVER into this field. Copy the field. On the copy, reset type to Dynamic Text and link to the variable `_parent._parent.finalScore`.



14 You can always add more game segments by inserting more frames to backgroundMC. Just be sure that startScreen and endScreen stay at the end. Now return to the bgPlayerMC timeline. Select backgroundMC and give it the instance name backGr2. Copy and paste this movie clip.



15 Position the new copy at X:-825, Y:-200. Give the copy an instance name of backGr1. Exit to the gameMC timeline. To complete the game elements, drag babyMC from the library to frame 1 of the layer baby. Position babyMC at X:-12.5, Y:85.0 and give it the instance name baby.

Part 3: Adding microphone interactivity

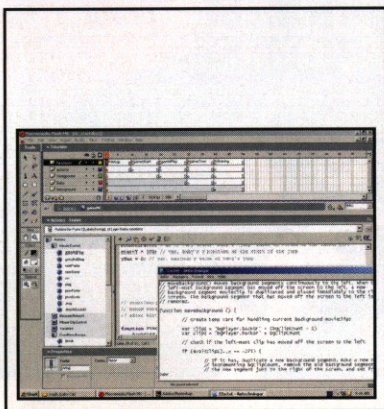
With *Flash MX*, adding audio interactivity to your productions is as easy as typing `Microphone.get()`...

Player Settings window

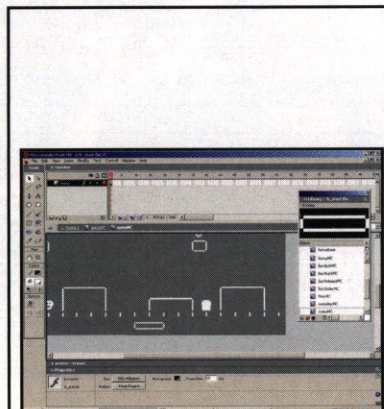
Whenever you use *Flash MX*'s new features to access local resources like the microphone, a dialog called the Player Settings Window pops up to ask the user for authorisation. This dialog is a movieclip that's built into the player, and as far as we've been able to tell there's no way to disable it. To access resource settings while the movie is playing, right-click and choose Settings....

Perfect Fools

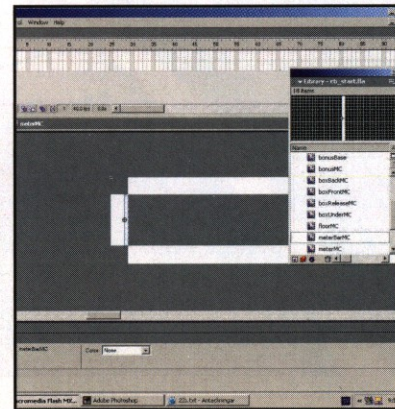
This tutorial was developed by Perfect Fools, the interactive production company based in Stockholm, Sweden. From an island stronghold in the heart of Stockholm harbour, it continues to hatch its megalomaniacal plot to conquer the world, one brand at a time. Visit Perfect Fools at www.perfectfools.com.



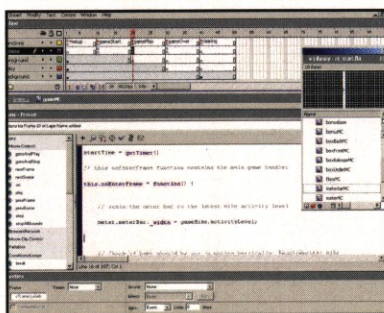
1 Enable the game elements with ActionScript. Go to frame 1, functions layer, open the Actions panel, and copy the contents of file 22a.txt from the CD into the gap following the variable list. Jump to frame 20, actions layer, and add the script from 22b.txt to the space after this `onEnterFrame = function() {`.



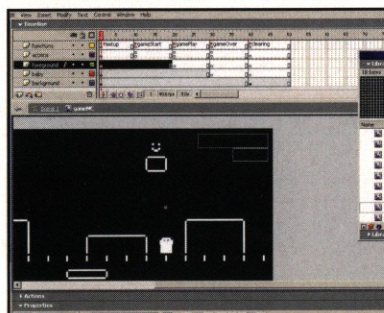
2 And now the fun part: connecting the microphone input to the game. First, we need a meter to display the microphone's activity level. From the Library, drag meterMC to the lower-left corner of the stage at frame 1, foreground layer. Double-click on it to edit it in place.



3 To ready meterMC for use as a readout, insert one layer and name it meterBar. Drag meterBarMC from the library onto this layer. Position meterBarMC at X:4, Y:5, and give it an instance name of meterBar. Exit to the gameMC timeline, select meterMC, and set its instance name to meter.



4 Time for the bits of ActionScript that exploit *Flash MX*'s microphone object. Open the Actions panel, select actions layer frame 10, and paste in the contents of file 25a.txt from the Tutorial\Web\Flash Sound folder on the CD. Go to actions layer frame 20 and, in the gap after this `onEnterFrame = function() {`, paste the script from 25b.txt.



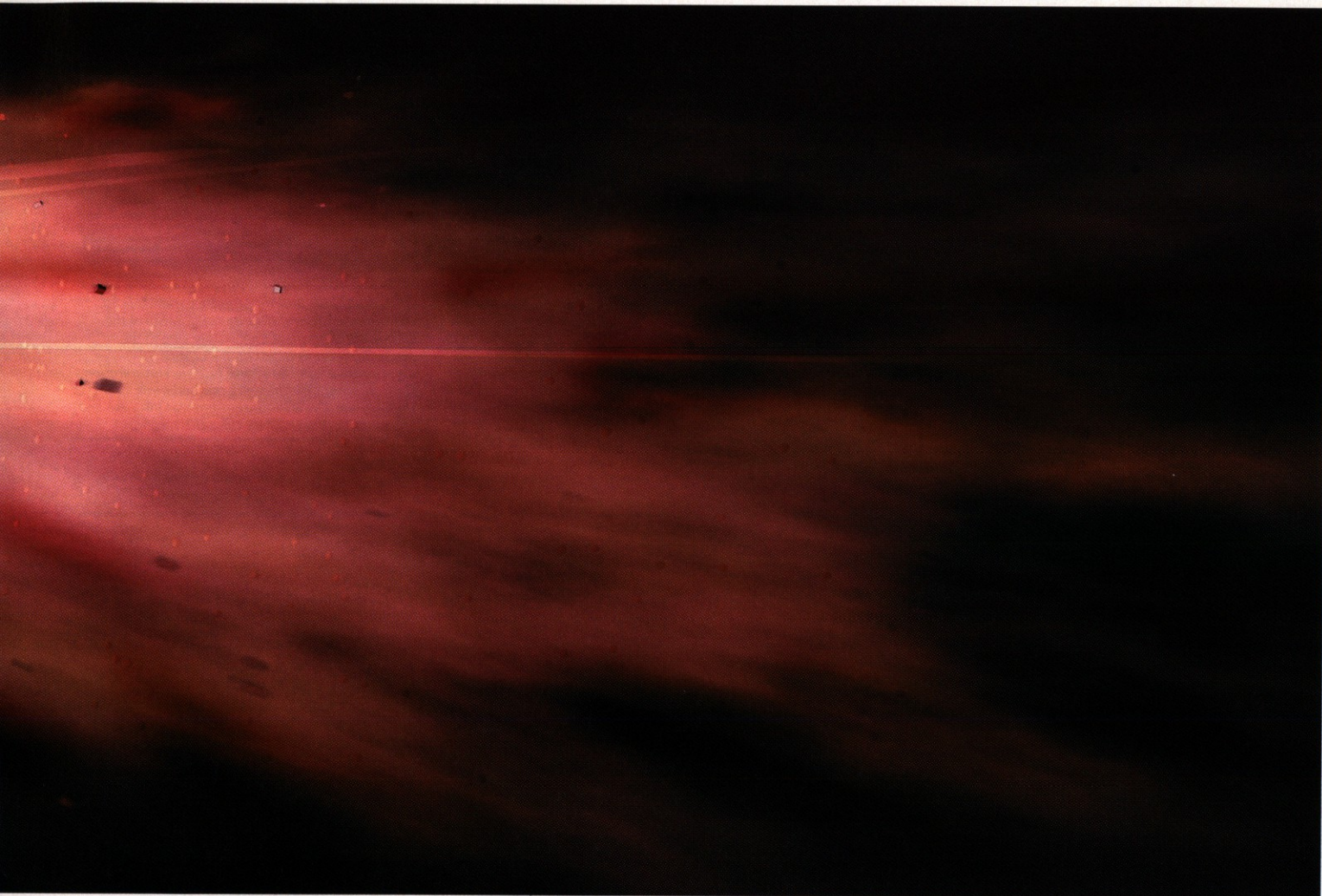
5 Finally, place two text fields on frame 1 of the foreground layer. In the Properties Inspector choose: Text type Dynamic Text, Font Pixel, Font Size 20 points, colour white, style Bold, alignment Right, Selectable off. Link the fields to variables `bonusPts` and `elapsedTotalSecs` respectively.



6 Copy the fields together with meterMC and paste them in place on frame 20. Back at frame 1 create another text field. Set Text type to Static Text, Font to Pixel, Font Size to 40 points, style to Bold, and alignment to Centre. Finally, type YELL TO PLAY into the field.



Illustration: Edmond Yang [e] edmond@edmondyang.com



Creating components with **Flash MX**

We show you how to create a component and a custom user interface in *Flash MX* to enable the building of better Websites...



Expertise provided by Brandon Williams, [e] ahab@houston.rr.com, and J. Scott Hamlin, [e] rendboy@austin.rr.com. You can see some examples of their work at [w] www.eyeland.com or [w] www.swiftlab.com.



Files on disc

Accompanying files can be found in the Tutorial\Web\Components folder. All code needed is in the text file, code.txt. A *Flash MX* demo is also on the CD.



Components are one of the more valuable and powerful capabilities in *Flash*, aiding Website design. While the example components that come with *Flash MX* may make you see components as programmatic macros, they are actually almost mini applications. The component we'll be looking at is designed to take a movie clip that contains graphics on each frame and

array them out in virtual space like a virtual art gallery. The code that accomplishes this is complex, and we don't have room to cover it line by line. The code featured may be difficult to read, so it is also on the coverdisc as a text file (code.txt) in the Tutorial\Web\Components folder.

There are several facets to creating components, but before we delve into the process and look at how to

make one, we'll focus on how they are utilised.

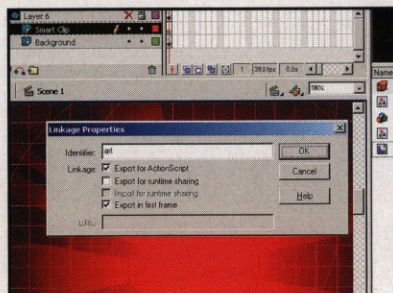
What does the component do, and how can it be used? The component we'll be generating in this tutorial is a 3D gallery in which you can navigate with either the arrow keys or the mouse. The gallery component could be used to showcase art, pictures, products or make a menu. It's a complex process, but we'll break it down into 36 steps... ►

Part 1: How to use components

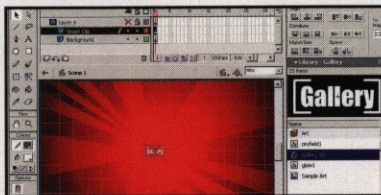
Become familiar with the basics of using components and take a look at the component featured here...

Online components

You can find free components online at many sites like Macromedia's Flash Exchanges ([w] www.macromedia.com) or at flashcomponent.com. Components are also available for sale at sites like eyeland.com.



1 From the Tutorial\Web\Components folder on the CD, move Gallery fla, Gallery_UI.swf and Gallery_UI fla to the same directory. Save Gallery fla to your hard drive. Open the Library and select the Sample Art movie clip. Open the Linkage Properties dialog, set the Linkage to Export for ActionScript and enter art as the name for the Identifier.



2 Drag an instance of the Gallery 3D component onto the stage on the SmartClip layer. Centre the Gallery 3D component instance on the stage. This is a pre-created version of the component that you can use for reference. You can edit the component and delete it. Where you position the component is important. The point you place the movie clip at can be thought of as the centre of the gallery. If you were to move backwards so that the gallery items travelled off into the distance, they would eventually reach a vanishing point. That point is where you should place the component.



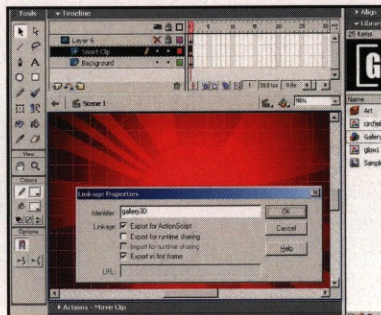
3 Let's look at the customisable parameters for this component. Click on the instance of the Gallery 3D component on the stage. Open the Properties panel and click on the Launch Component Parameters Panel button. This will open the Component Parameters panel and it will load the Graphics_UI.swf as the custom user interface. Enter 'art' in the Graphics Linkage ID field. This tells the parameter to use the Sample Art movie clip to generate the gallery effect. Close the Components Parameters panel and test the movie.

Part 2: Creating components from scratch

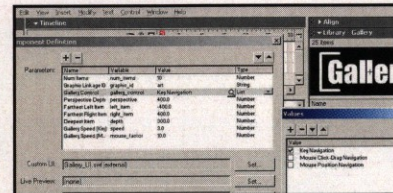
Standard movie clips are transformed into components with the Component Definitions dialog box...



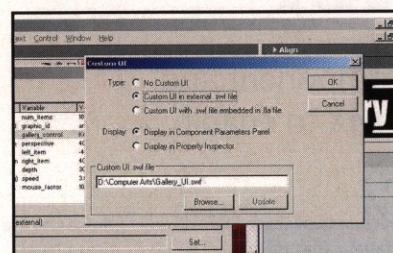
1 The creation of a component starts off similarly to a basic movie clip. You simply start by creating a standard movie clip and insert any desired component graphics and code. This particular component requires that the user supplies a separate movie clip for the graphics – you will not draw anything in the component movie clip. The white [Gallery] text in the 3D Gallery component is there only to make it easier for you to see. Edit the Gallery 3D component and observe that it is just like any other movie clip. You can delete the Graphics layer to get rid of it and the component will work perfectly.



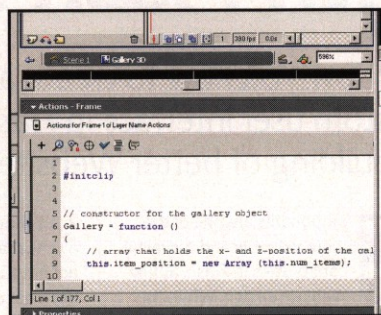
2 Open the library, right-click on the movie clip, select Linkage, and notice that the Component also has an Identifier. The Identifier that is set in the Linkage dialog box is necessary to associate the component with that which is contained in the component. We look at how this Identifier is referenced in the code later. All components require an Identifier. Close the Linkage dialog box.



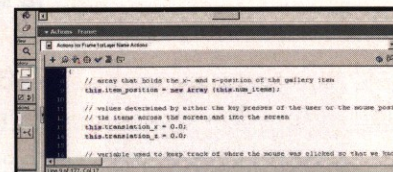
3 Select Component Definition from the Library Options menu. A movie clip becomes a component when it is defined as one with the Component Definition dialog box. This is where you enter the editable parameters. Enter a Name, Variable, Value, and Type for each parameter. The most important field is the variable name which must match the variable that it will be tied to in the code. The name field can contain anything that describes what the variable is for and the value is the default value that will be displayed when a new instance of the component is dragged on the stage. Note that one of the data types is a list. List values can be added with the Values dialog.



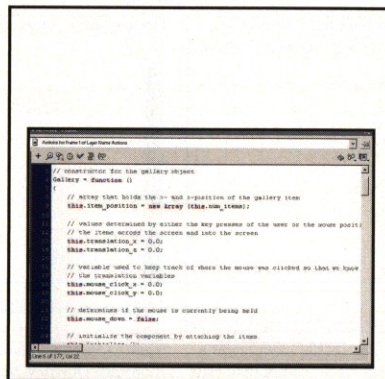
4 Click on the Set button next to the Custom UI field. The Custom UI field is where you define what SWF file will replace the default Flash component box. You select the SWF file to be used as the custom UI by browsing to it and selecting it from your local drive. It is a good idea to place the SWF for the custom UI in the same directory as the Flash file you're working on. The custom UI file is usually made after you have properly defined a component. We will talk about creating a custom UI later. Close the Component Definition dialog box.



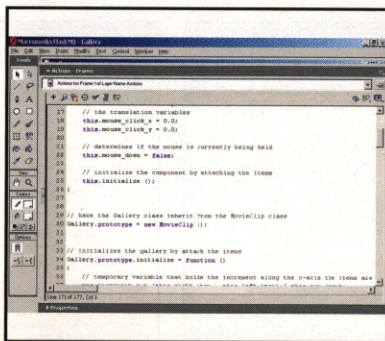
5 Let's add some functionality to a component. Fundamentally you add ActionScript to a component much as you would add ActionScript to any other movie clip in Flash. The key difference is that we must tie the component to the Component Definitions and the custom UI. Edit the Gallery 3D instance on the stage, select frame 1 on the Actions layer, and open the Actions panel.



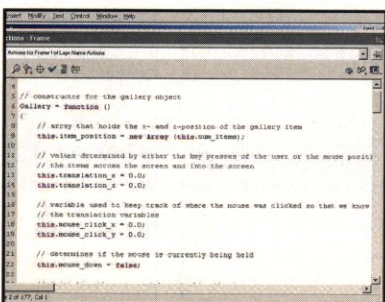
6 To use components to the best of their abilities, the code for it is usually written as a class. A class is like a blueprint from which instances are created. Classes contain properties that are associated with the class and methods that are attached to the class. In addition to properties and methods, all classes have a constructor. It is the constructor that creates instances of the class. For example, the Array class is a blueprint for creating arrays in Flash MX. It has a property of length, and methods to sort the array, insert new elements, as well as remove elements. The constructor for the Array class is the Array () function. To create an instance of the class you use the keyword new: my_array = new Array ();



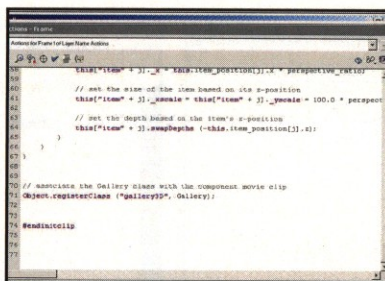
7 The Gallery class for the gallery component is defined with the line `Gallery = function ()`. The Gallery class has all the properties that are defined in the Component Definition box, as well as a few others. It also has methods to capture key presses or mouse movements for navigation, and it will translate and render the gallery items.



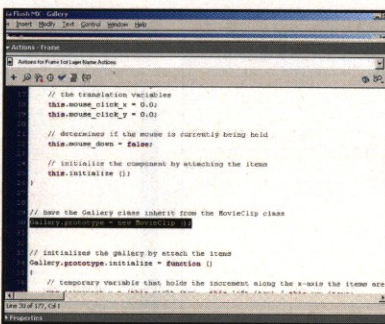
10 Look at the code for this step from the CD. We need to make the component act like a movie clip, even though it is an instance that is set to inheritance. Inheritance is a way of deriving classes from a previously defined class. If class B were to inherit from class A, B would have all the same methods and properties as A in addition to its own – for example, if the class Male and Female derived from the class Human.



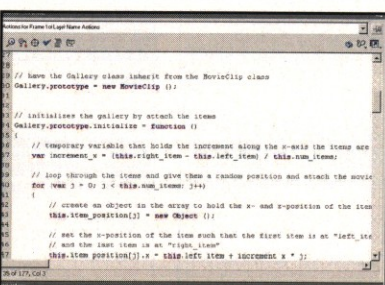
13 Look at the code on the CD for this step. Taking the last few steps into account, this code establishes the class for the gallery component. First we have the constructor for the component class, then we derive the class from MovieClip, before associating the class with the gallery movie clip. In addition to the properties that the user can change in the Component Parameters box, the constructor initialises a few other variables.



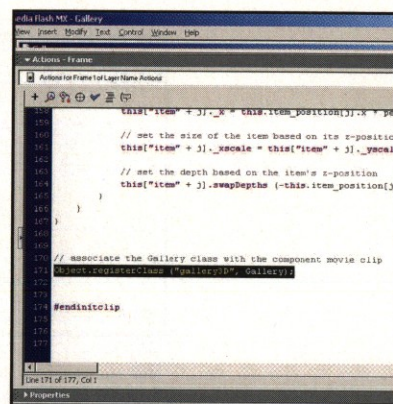
8 The code for this step is in the code.txt file in the Tutorial\Web\Components folder on the CD. One of the advantages of Flash MX's components over version 5's smart clips is the integration of classes and components. When you drag an instance of a component onto the stage, you are creating an instance of the class – the movie clip has all the properties and methods of the MovieClip class as well as the component class. All high quality components use this. It provides a way to organise and encapsulate components, making them easier to use. There are two steps to set this up.



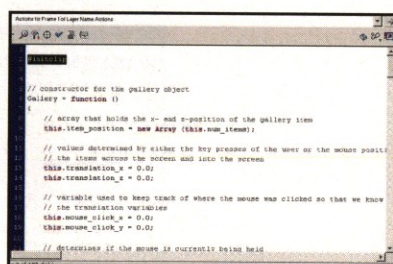
11 Inheritance is used in components to inherit from the MovieClip class. Since all instances of the component are treated like instances of the component class, if the class did not inherit from MovieClip and only used registerClass, you would completely nullify all properties and methods that the movie clip should have. So, to get the component class to inherit from the movie clip class we use this code:
`Gallery.prototype = new MovieClip ();`



14 This code defines the class, inherits from MovieClip and associates the class with the component. Note that the `Object.registerClass` call comes after the inheritance code. You should also notice in this piece of code the call to the `Initialize` method. This method will be implemented and discussed later, but it is this that attaches the instances of the movie clip that are created by the user. The only thing left to do now is to implement all the methods.



9 First we need the `Object.registerClass`. `Object.registerClass` has two arguments. The first argument is where we put the identifier that we looked at in step 5. The second argument contains the name of the class (Gallery). This associates the Gallery class with the component movie clip.

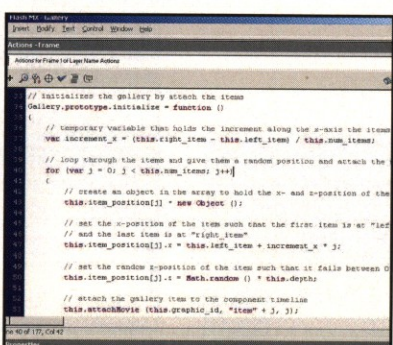


12 Notice the first and last line in the script. There is one problem with writing the class inside the component that needs to be dealt with. A class for a component only needs to be defined once, but every time an instance is dragged onto the stage the class will be redefined. Flash MX provides a way to skip the definition if it has already been defined once with the use of `#initclip` and `#endinitclip`. You would use the actions like this:

```

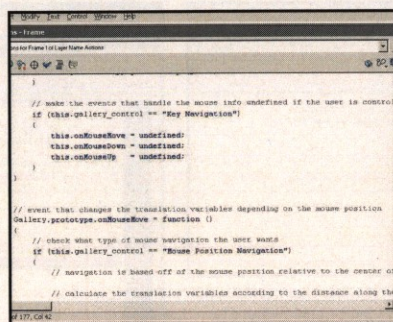
#initclip
// class definition goes here, and executed
// only once
#endinitclip

```

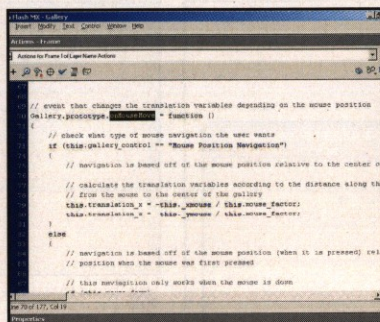


15 The code here is the first part of the `Initialize` method implementation that will attach the gallery items to the component movie clip and initialise their positions. Each item is spaced evenly along the x-axis with the first item at `left_item` and the last item at `right_item`. Then each item is given a random z-position.

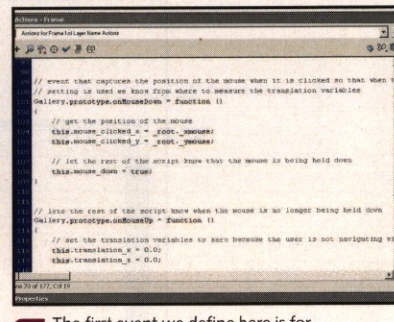
Part 2: Creating components from scratch, continued...



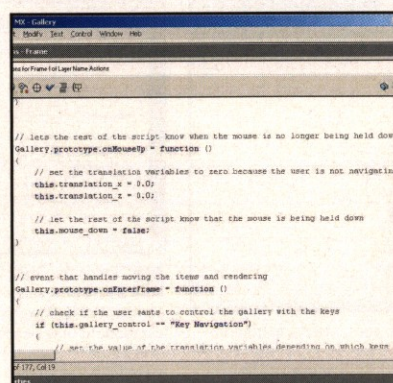
16 The last part of the Initialize method (seen in the relevant code) is a conditional statement that relates to the user's decision on how to navigate the gallery. The methods onMouseMove, onMouseDown and onMouseUp will be implemented shortly, but they all relate to changing the values of the translation variables that affect how the gallery moves. If the user has chosen to use keys to navigate the gallery then these methods should not be called, so they are set to undefined.



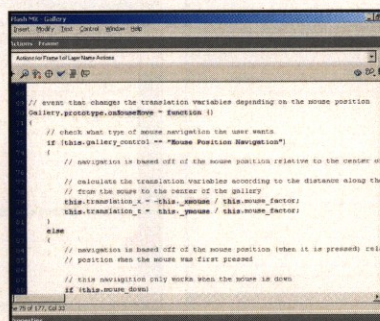
17 The idea that an instance of the component is treated like an instance of the component class is very useful. Since instances of the component have all the methods and properties of the component class, you can define events like onEnterFrame and onMouseDown in the class and they will become the events of the component movie clip. If you define the method onEnterFrame in your class, those actions will be executed every time your component is on the stage.



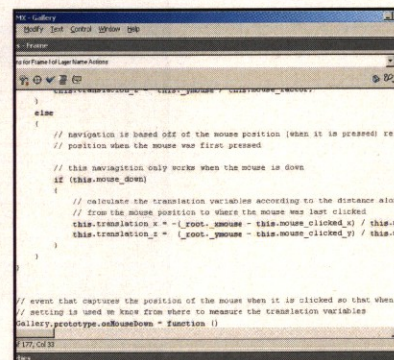
18 The first event we define here is for capturing when the mouse is pressed with onMouseDown. When the user clicks the mouse we need a few pieces of information. Firstly, we must reset the mouse_down Boolean value to let the rest of the code know that the mouse is down. We also need to know exactly where the user clicked their mouse. Depending on how the user wants to navigate the gallery, the translation values may be determined by how far the mouse is from where they clicked.



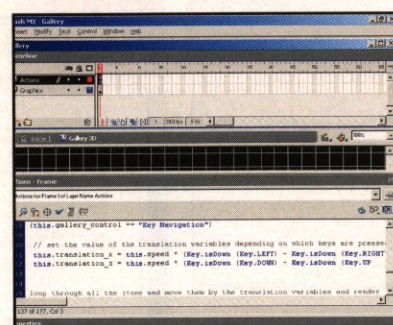
19 Look at the code for this step from the code.txt file on the CD. When you release the mouse the Boolean is set to false, and the translation variables are reset to zero since the gallery should not be in motion. This code acts to stop everything when the mouse is released.



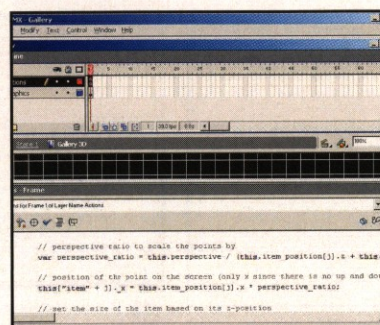
20 The next event seen in this piece of code is what changes the translation variables depending on the position of the mouse. There is a conditional statement that controls the flow to where the translation values are calculated because there are two different ways to navigate with the mouse. The first part (everything under "if") is for when the navigation is based off the mouse position relative to the centre.



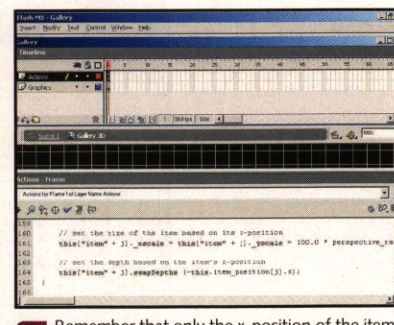
21 The "else" portion of this code of the conditional handles the translation values when the movement is dependent on the distance between the mouse and the where the user clicked. For instance, if you click and then drag, this code controls the navigation according to how far and which direction you drag to after you click.



22 The final event added to the class is onEnterFrame. This method takes care of quite a bit. Its first objective is to capture key presses for users that want control of the gallery through the arrow keys. Since the isDown method of the Key object returns a true or false (1 or 0 numerically) we use the return values to change the value of the translation variables in this step's code.



23 When the key presses have been checked the final stage in the component's code is to render the items. We have an item in 3D, but only a 2D screen to view it on. We must, therefore, transform a 3D point to a 2D point in order to render the item on the stage. This piece of code handles the necessary calculations.



24 Remember that only the x-position of the item needs to be evaluated, because we are not enabling the user to move up and down along the y-axis. The next step to rendering, after positioning, is to scale the item and make sure that items closer to the viewer overlap items in the background. The variable perspective_ratio helps with scaling the movie clip, and the z-position of the item helps with z-sorting the items.



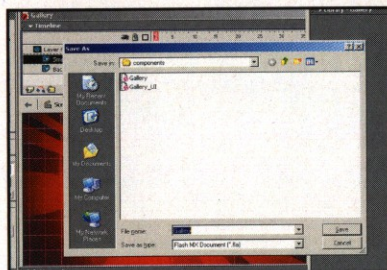
This Flash MX tutorial was originally printed in issue 33 of Computer Arts Special, 2002 — an issue devoted entirely to Web design. Never miss an issue of Computer Arts or Computer Arts Special — turn to page 46.

Part 3: Creating a custom UI for your component

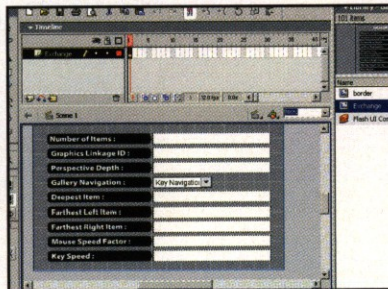
A custom UI provides a more user-friendly environment for editing your component's parameters...

Easier access

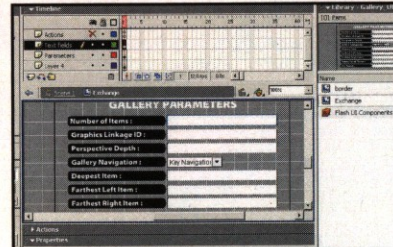
Opening a custom UI via Panels>Component Parameters can be a little intimidating for *Flash* newbies. You can make the custom UI more easy to access by setting it to open in the Properties Inspector. To do this, select the Component in the Library, open the Component Definitions dialog and click on the Set button next to Custom UI. Click on the Display in Property Inspector option instead of the Display in Component Parameter Panel option.



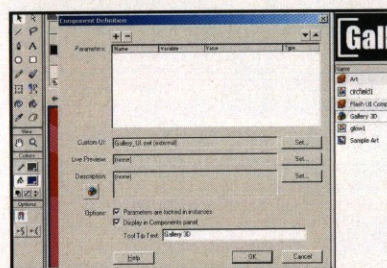
1 Close the Actions panel and exit out of the Gallery 3D component and save the Gallery file to your local hard drive. Now let's look at how to create a custom UI. A custom UI that will be used to do customisations. There are many advantages to creating your own UI rather than resorting to the default. You can provide text that explains what each parameter means, and you can check what the user entered to make sure they did not enter something erroneously.



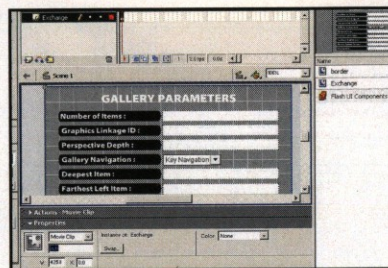
2 Open the Gallery_UI.fla file from the CD. Open the Library. Custom UI is just an SWF that replaces the default Component Parameters box when the user right-clicks on the component. Therefore, you must create a new Flash movie. The stage size can be any dimensions you want when the user right-clicks the component. A separate window will pop up for them to enter the information into and to customise it



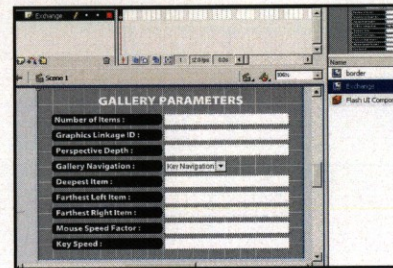
3 Edit the Exchange movie clip in the Library. Select the text field next to Number of Items. The most obvious step of the UI is to actually make the interface that the user is going to work with. For this component, the interface consists of a column of text fields (on the right) that the user enters the values into, and a column of text (on the left) that explains what each field represents. The variable names for the text fields are exactly the same as the names that appeared in the original Parameter Definition box.



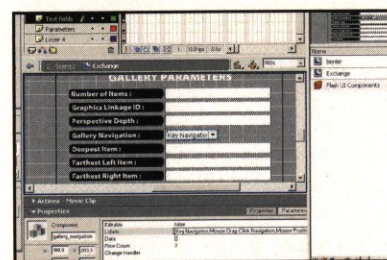
4 If you chose to make a custom UI for your component, it is no longer necessary to add parameters to the Component Definition box. In fact, just to make sure that there are no conflicts with the settings in your UI and *Flash*'s default UI, you should not define any parameters for the component in the Gallery_UI file. Also, if you ever wish to flush out all the variables in a component you must delete the instance and drag a new one onto the stage. This sometimes needs to be done when you add a parameter after an instance is already on the stage.



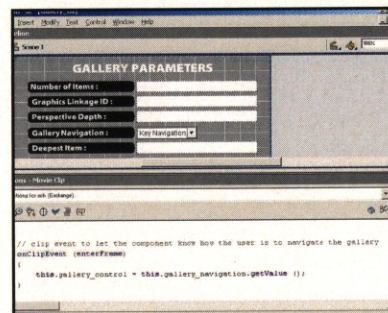
5 Return to Scene 1. Select the Exchange movie clip on the stage and open the Properties panel. The most important aspect of the custom UI is sending data from the interface SWF to the FLA that holds the component. The component must know the values of the parameters that the user entered for it to function properly. *Flash* handles this with a special movie clip in the UI. The instance name of this movie clip instance must be called xch. When a person using your component closes the custom UI, *Flash* takes all the variables in xch and places them in the instance of the component.



6 Close the Properties panel. Once you have the xch movie clip in place you must continuously take the information in the text fields of the interface, and put it in the movie clip so that the component gets the information. You need to make sure that all the variables that the user can change are passed to the xch movie clip by the time the UI is closed. The easiest way to do this is to simply put all the text fields the user can edit in the xch movie clip itself. This will guarantee that no matter when the user closes the UI, the variables will be in there.



7 Edit the Exchange movie clip. Click on the ComboBox movie clip (with the text Key Navigation in it) next to the Gallery Navigation label. Open the Properties dialog box and click on the Properties and Parameters tabs. When the user selects how they want to navigate the menu, they can only choose Key Navigation, Mouse Click-Drag Navigation or Mouse Position Navigation. You can also use components within components. In this case, we simply need to use the Combo Box component that is provided by Macromedia. By dragging an instance into the xch movie clip, we can give it the instance name gallery_navigation, and edit its parameters.



8 Return to scene 1. Select the Exchange instance and open the Actions panel. Since the choice of how the user is going to navigate the gallery is encapsulated in the ComboBox component, we need some way of getting that value to the xch movie clip. This is done with the getValue method of the ComboBox class. The getValue method is used in a clip event on the xch movie clip. Every frame takes the value in the combo box and puts it in xch for the component to use.



9 The component is now fully functional. You can drag as many instances as you want on to the stage, and customise each one through the Component Parameters box. An interesting effect is to separate your graphics into a few movie clips and use a gallery component for each set of images. If each component was positioned in a different spot you could create some very weird perspectives on the showcase. Or, you could replace images in the movie clip that you made with buttons and you have a 3D menu to navigate through.

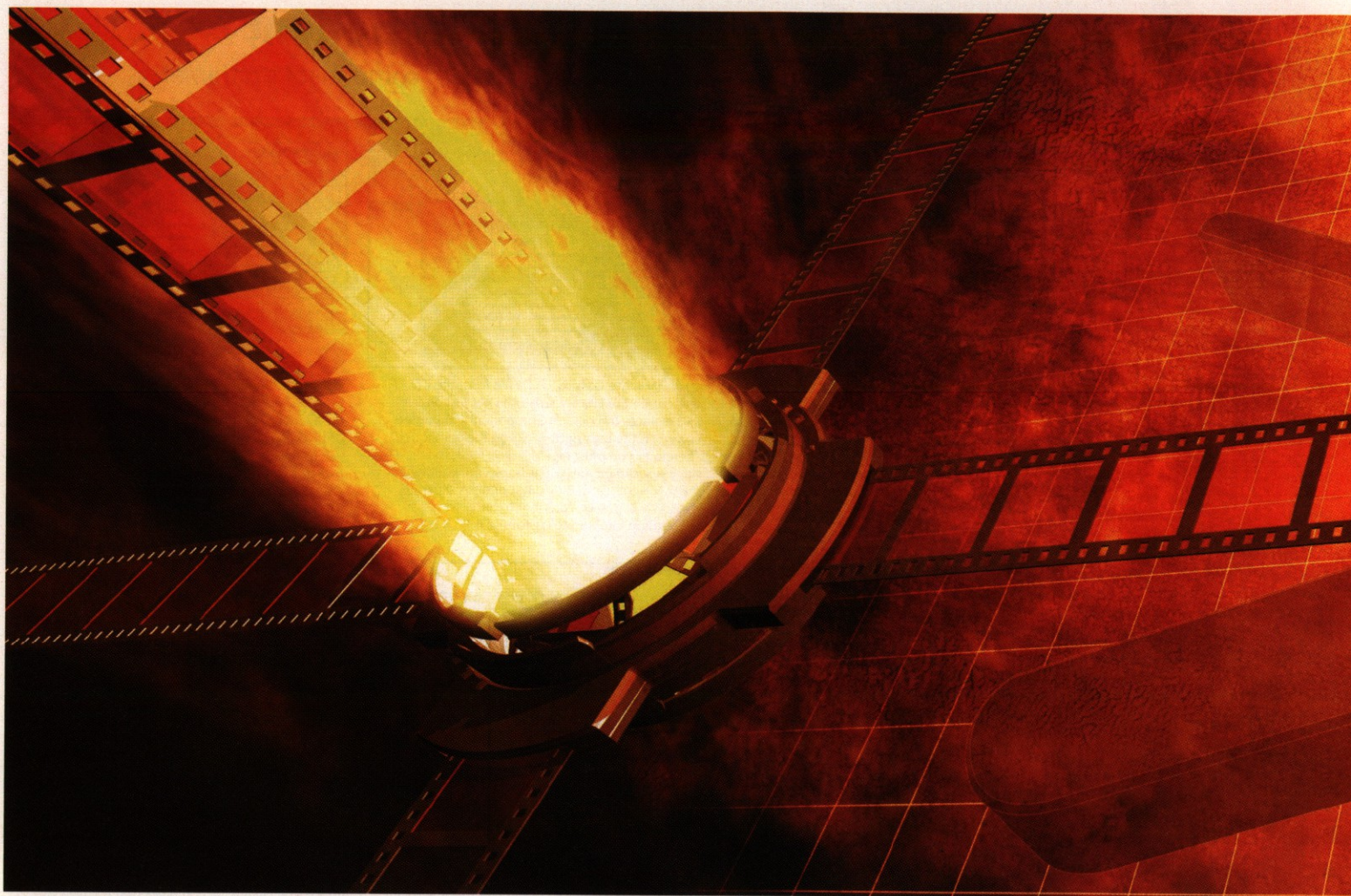
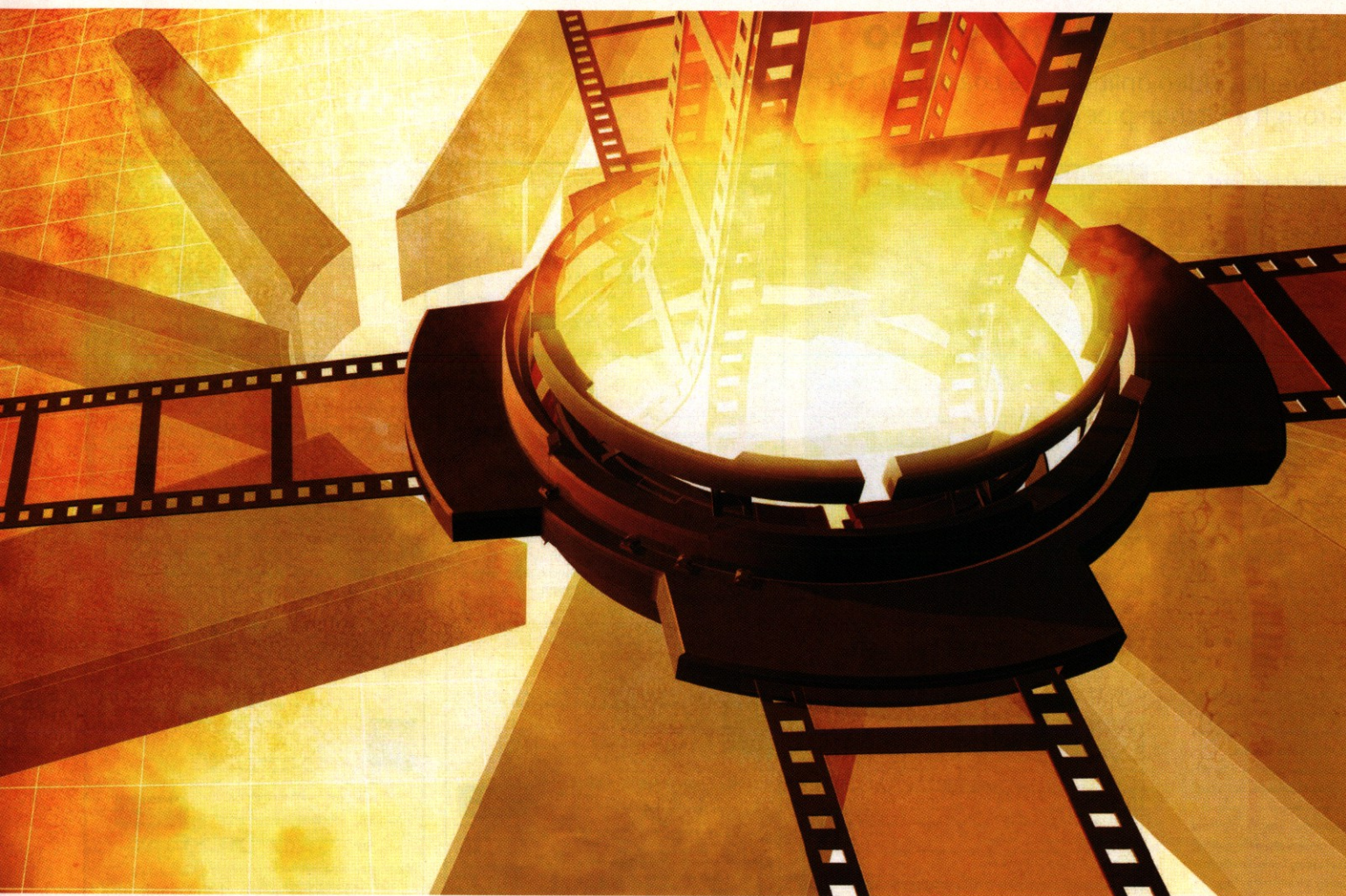


Illustration: Magictorch [w] www.magictorch.com



Video in Flash MX

Flash MX enters a whole new arena with support for embedded video...

With the introduction of *Flash MX* comes the ability to embed video clips directly within your Flash projects. Macromedia worked with Sorenson to develop a new codec called Spark, which is designed specifically for *Flash*. The *Flash MX* authoring tool includes the Spark video encoder and the decoder is built into the Flash Player.

Developers using *Flash 5* who needed video content had few choices. One option was to create movie clips containing a series of bitmap images. Anyone who has used this approach will instantly appreciate the power of the new video features with *Flash MX*. The new video playback is

smooth, the quality is good and the file sizes are amazing.

The great news is that once embedded within a movie clip you can manipulate the video like you would any other *Flash* asset. So, you can move, mask, and control the playback of the video using ActionScript. This opens up a whole range of opportunities for *Flash* developers to incorporate video into less traditional interfaces.

We're going to start by importing video clips in *Flash MX*. We will then move on to using ActionScript to build a playback controller that will enable the user to start, stop and advance through the video clip. The final stop will be looking at masking to create a video kaleidoscope. ➤



Expertise provided by Jason Krogh, a *Flash*-based developer and trainer. You can contact Jason at jekrogh@zincroe.com.



Files on disc
The movie clip supplied by Artbeats and the code needed for this tutorial are on the cover CD in the Tutorial\Web\Video in Flash folder.

Part 1: Importing video

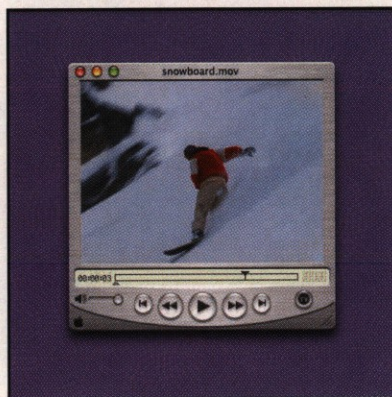
Delivering video online is like coaxing an overweight elephant through a kitchen pipe...

Codecs: temporal and spatial compression

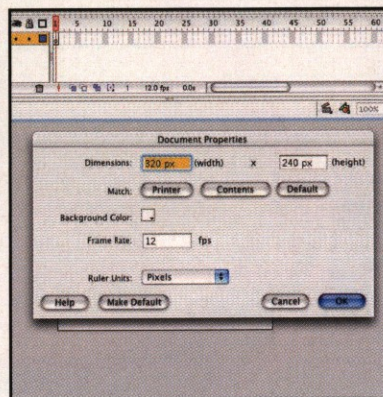
A codec is an algorithm used to compress and decompress video. Cinepak and Sorenson Video are examples of popular codecs. Two techniques are used to compress the video. Spatial compression works much like JPEG compression to create a small description of an image. Temporal compression uses the similarity across frames to squeeze file sizes down even smaller. The Sorenson Spark codec used in *Flash MX* employs both approaches.

Video keyframes

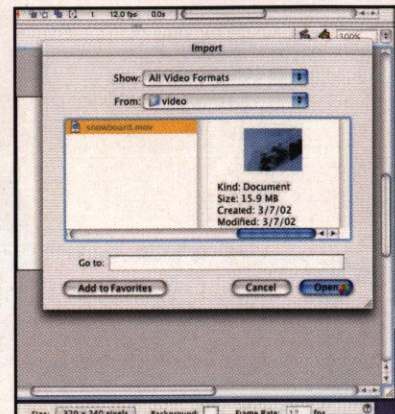
A keyframe in video compression is not the same as keyframes in the *Flash* Timeline. Interframe compression takes advantage of the fact that a set of video frames are often very similar, or that the active part of the frame may be restricted to a small area of the screen. When *Flash* compresses the video it starts with a complete description of the very first frame. Subsequent frames are then described in terms of their differences from this frame. The process of looking at all the preceding frames in order to render a frame can be very taxing on your computer. So, periodically, the encoder will store a single complete frame called a keyframe.



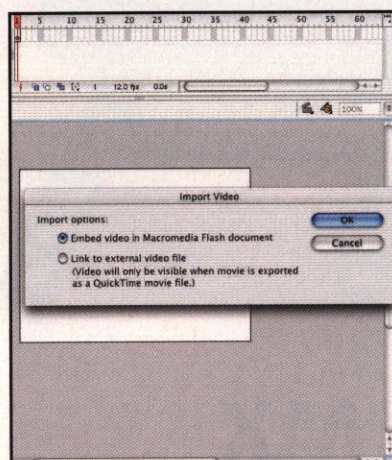
1 The snowboard.mov clip supplied by Artbeats, which is on the CD, has been reduced in size to 320x240 and the frame rate cut to 12.5 frames per second. But even still it is nearly 16MB – far too large for delivery online.



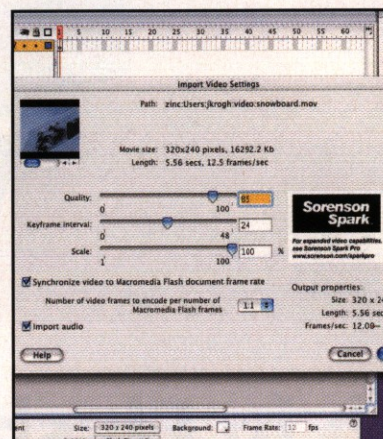
2 We are going to prepare a simple *Flash* movie containing a single compressed video clip. Create a new *Flash* file then click the stage size button in the Property Inspector and change the dimensions to 320 wide and 240 high.



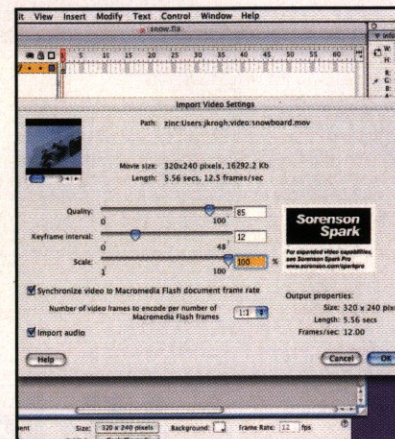
3 Select Import from the File menu. If you have QuickTime 4 installed, *Flash* will enable you to import video in a MOV, AVI and MPEG formats. Select the snowboard.mov file and click OK.



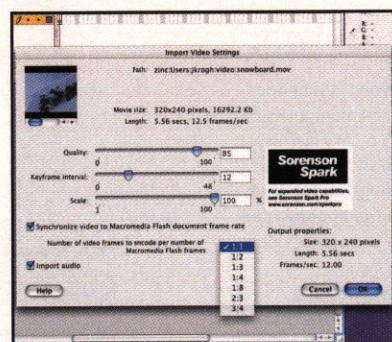
4 When importing QuickTime files *Flash* will check to see if you want to embed the video into your project or link a *Flash* file to a QuickTime file as a new track. Select the embed option.



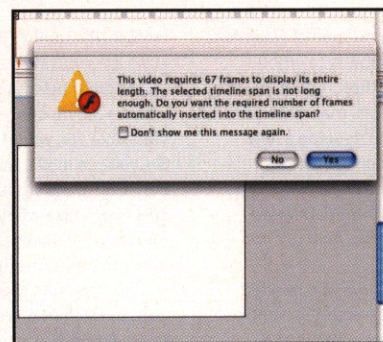
5 *Flash* compresses the video when it is imported and not when the SWF file is generated. The first setting you will come across is the quality slider. Set the quality to 85. Values below 75 normally result in poor visual quality.



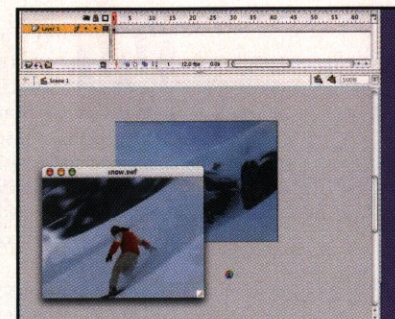
6 Enter a value of 12 for the Keyframe Interval and 100 per cent for the scale. The Keyframe interval marks how frequently a complete frame is stored. A lower value for the interval creates larger files but also enables faster seeking during playback.



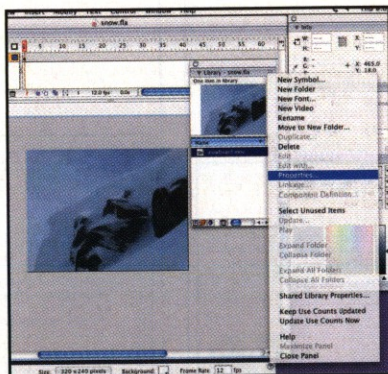
7 Set the frame ratio to 1:1. This will compress the video with a frame rate of 12fps whereas a setting of 1:2 would use a frame rate of 6fps. For online delivery there is rarely a need to use a rate higher than 12fps.



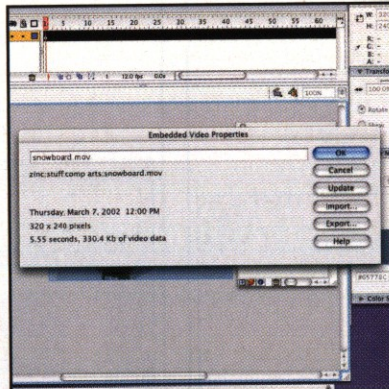
8 Imported video is automatically added as a library symbol much like bitmaps and audio clips. *Flash MX* will also place a copy on the active layer and display an option to add frames to make space for the video.



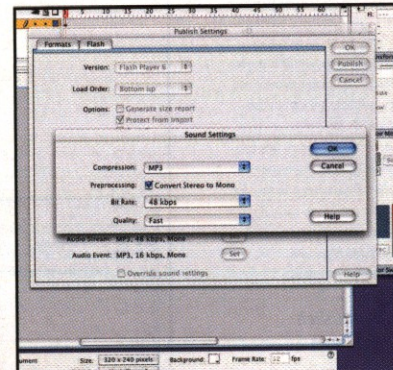
9 Position the newly imported video to align with the stage area. You will notice that there is no audio playback of video assets from within the authoring environment. Use the Test Movie option under the Control menu to see (and hear) the compressed video.



10 Select the video asset in the Library panel and use the drop-down menu to open its properties. You can use this Property window to reimport the video if you make changes to the video or want to use different compression settings.



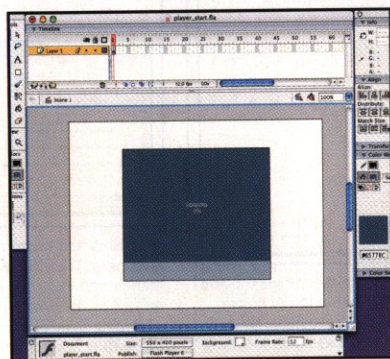
11 Another option in the Properties window enables you to export video symbols to FLV files. These compressed video files can be imported directly into other Flash projects.



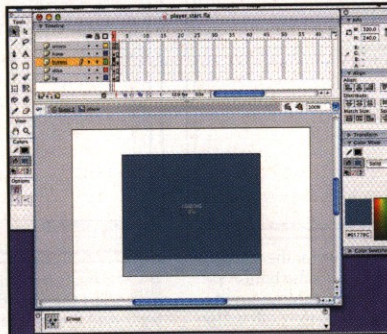
12 Now that we are done let's publish the finished SWF. Pay special attention to the audio quality settings. The audio track from imported video is compressed according to the publish settings for the audio stream.

Part 2: Video playback controller

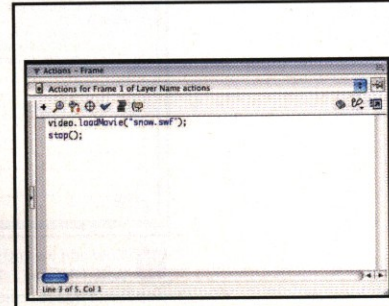
A little ActionScript can go a long way in creating a sophisticated video controller interface. All code required is on the CD...



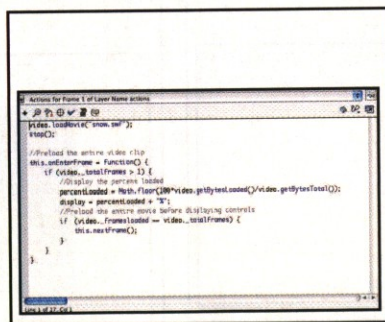
1 Open the player_start.fla document from the CD. This file contains all the interface elements and the basic structure of our video player.



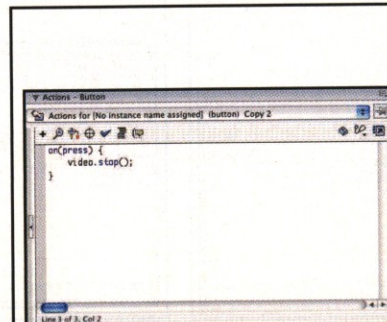
2 Double-click on the player movie clip to edit it. You will see that the first frame is displayed while the video is loading and the second is used once the load is complete.



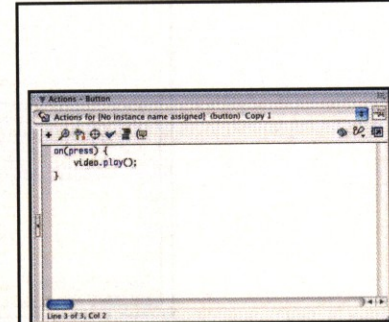
3 Select the first keyframe in the Actions layer and open the Actions window. Add the code above, which is in the Tutorial\Video folder on the CD. The first line initiates the load of the snow.swf file already created. The next line stops playback.



4 Add the rest of the code here (also on the CD). This code calculates the percentage of the video file which has been downloaded. When the entire file is loaded it advances the movie clip to the next frame.



5 Now advance to the second frame. Notice the appearance of the three playback control buttons as well as the volume slider. Select the stop button and add the code seen here.



6 Select the play button and add the code: `on (press) { video.play(); }`

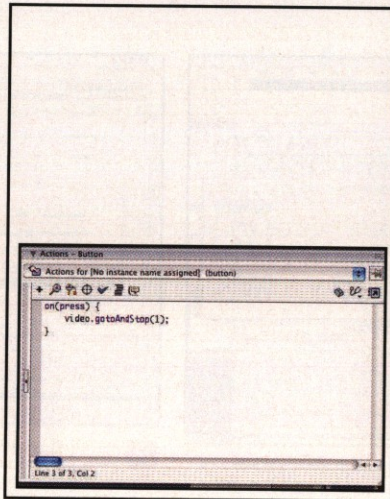
Part 2: Video playback controller continued...

Go lossless

Every time the footage is copied, digitised or recompressed you can expect to see a drop in quality. Just as with JPEGs each time you recompress the video new artifacts are introduced. When you need to store digital video at maximum quality, use *QuickTime Pro's* animation codec. This is only practical for shorter clips because of high file sizes, but it will store the video with a lossless compression scheme.

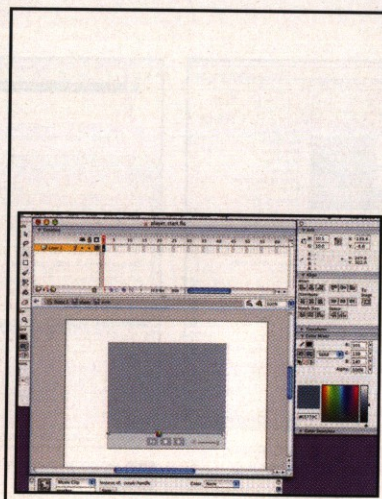
Progressive download

In most cases it is safe to let the user start viewing the video before the entire clip has been downloaded. As with other *Flash* content the video is streamed into the player. In this case we are preloading the entire clip because the user can scrub the video to any point in the video right away.

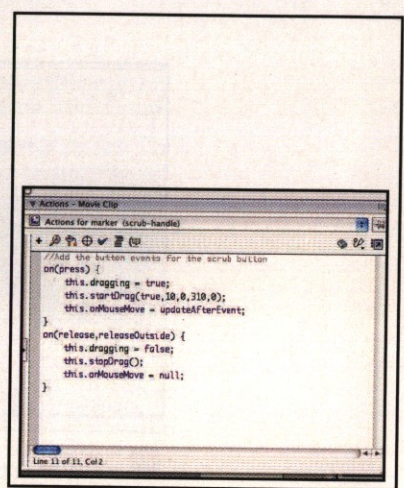


- 7 Select the reset button and add the code:

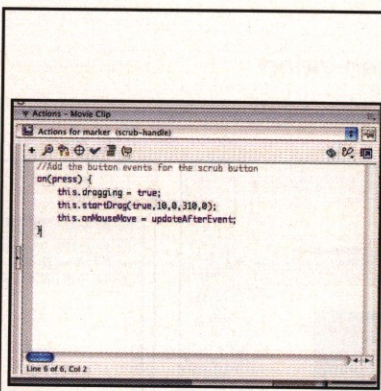
```
on(press) {
    video.gotoAndStop(1);
}
```



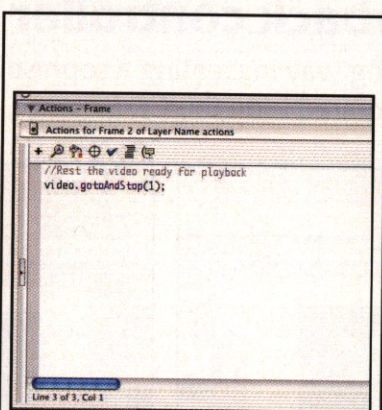
- 8 The horizontal line and diamond shaped button are the scrub controller. This lets users advance to any point in the video. Double-click the scrub movie clip and select the marker movie clip.



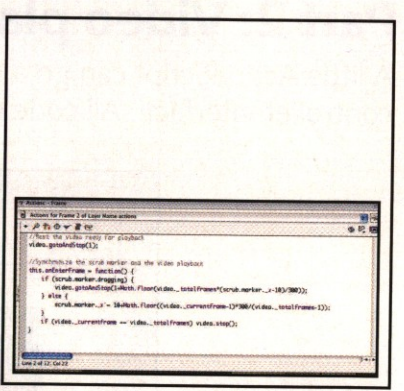
- 9 Open the Actions editor and add the code displayed above (also on CD). The startDrag action enables the user to slide the marker and also sets up a mouseMove event to force a screen update as the marker is being moved.



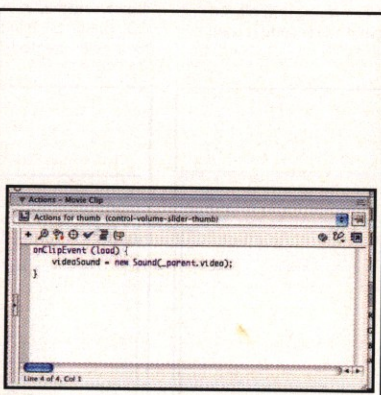
- 10 Now add the rest of the code for the marker. When the user releases the mouse button we stop the drag and remove the mouseMove event. Note that *Flash MX* enables you to use both button and clip events on movie clip instances.



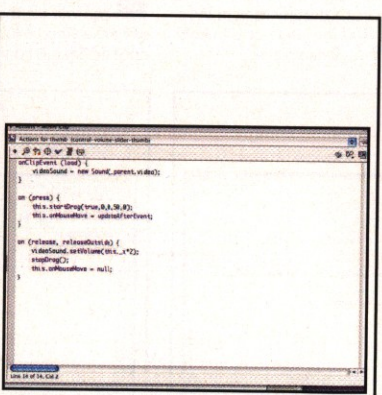
- 11 Navigate back up to the player movie clip and select the second keyframe in the Actions layer. Add the line of code displayed here. This will stop the video playback when it is initially loaded.



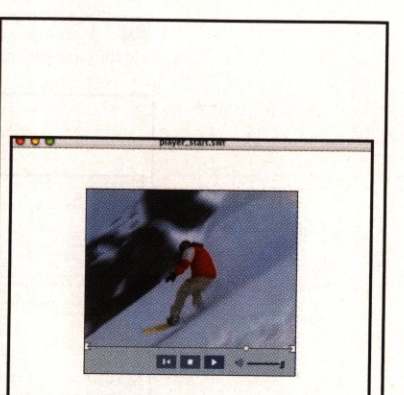
- 12 Now add the remainder of the code displayed here. This code is used to keep the scrub marker and the video in sync. If the marker is being moved by the user then we queue the video according to its position. Otherwise we reposition the marker according to the position of the video.



- 13 Now we need to add some code to the volume slider. Double-click on the volume-slider movie clip and select the volume-thumb movie clip. Add the code in the Actions editor. This establishes a sound object associated with the video clip.



- 14 Now add the rest of the code for the volume-thumb movie clip. Most of this is similar to the code used for the Scrub Marker. Note the setVolume action used to change the sound level after the user has moved the thumb marker.



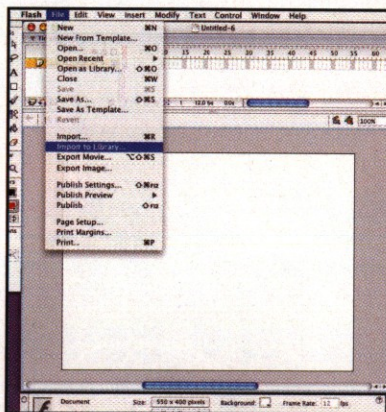
- 15 Now that all the coding is complete, we can try the Test Movie option under the Control menu. If you run into a problem compare your work with the player.fla file in the finished folder.

Part 3: Video kaleidoscope

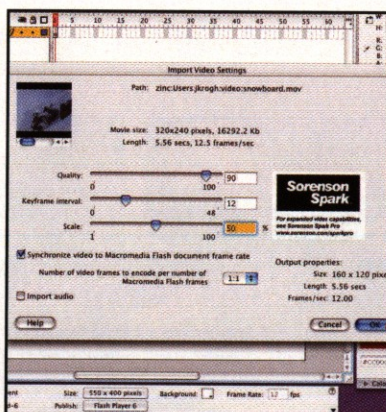
You don't need to be a programmer to have some fun with video in *Flash*. You can apply masks, tweens and colour transforms just as you would for other artwork...

Spark Pro

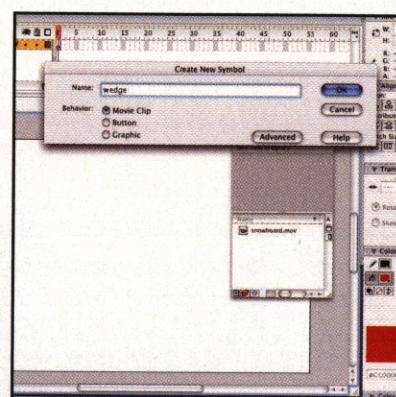
If you're using a lot of video in *Flash* you may want to investigate *Spark Pro* – a video encoder which offers improved compression options. You can find *Spark Pro* at [w] www.sorenson.com/sparkpro.



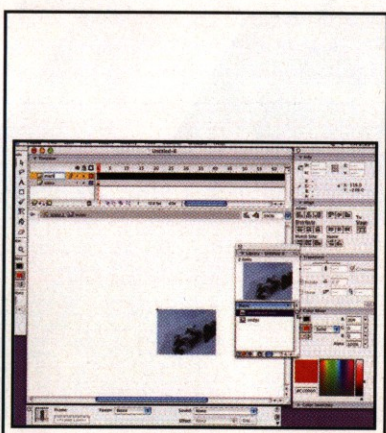
1 We are going to use the same snowboard footage again for this project. Create a new document and import the snowboard.mov file using the Import to Library option under the File menu.



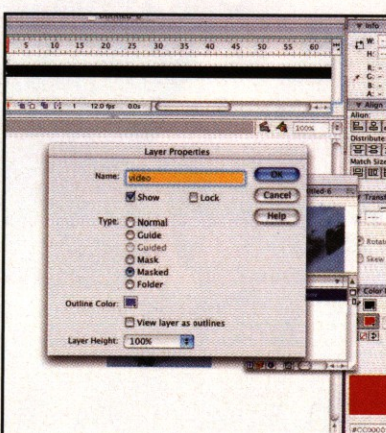
2 In the video import window set the quality to 100, the keyframe interval to 12 and the size to 50 per cent. We won't need the sound so deselect the import audio option.



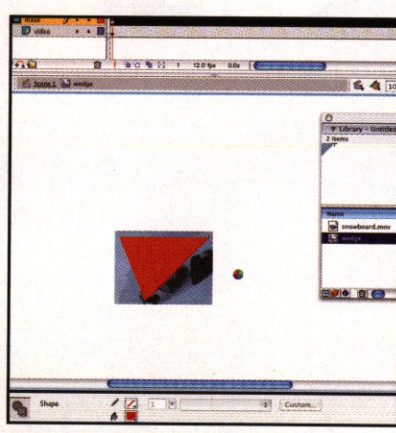
3 Open the Library window and create a new movie clip symbol named wedge. Drag an instance of the video clip into the new movie clip. You will be prompted to add more frames for the video. Click OK to add the frames.



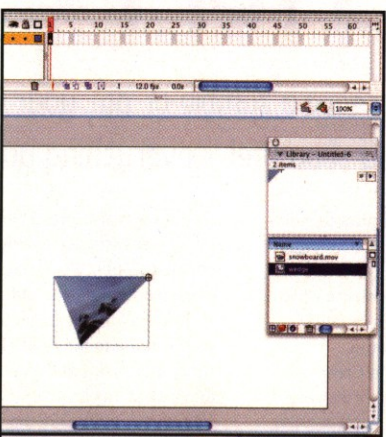
4 Add a new layer in the Timeline using the insert layer button. Name the bottom layer video and the upper layer mask.



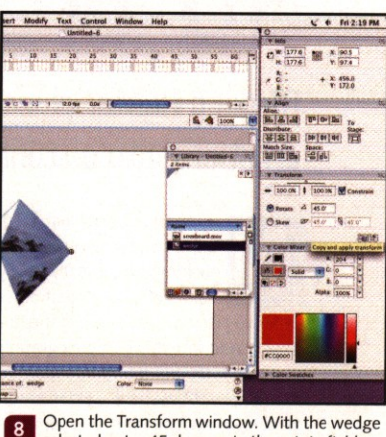
5 Double-click on the Layer icon to open the Layer Properties window. Set the top layer to mask and the bottom layer to masked.



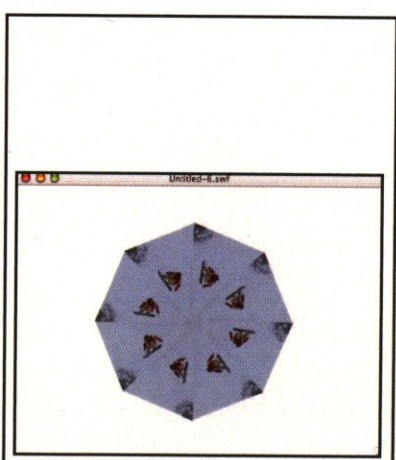
6 Draw a triangular wedge shape on the mask layer. The sides of the wedge should be at a 45-degree angle. Adjust the mask and video so the wedge's tip lines up with the crosshairs on the stage.



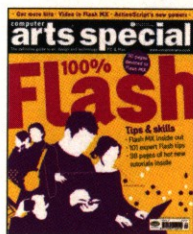
7 Navigate up to the main Timeline and drag an instance of the wedge movie clip onto the centre of the stage.



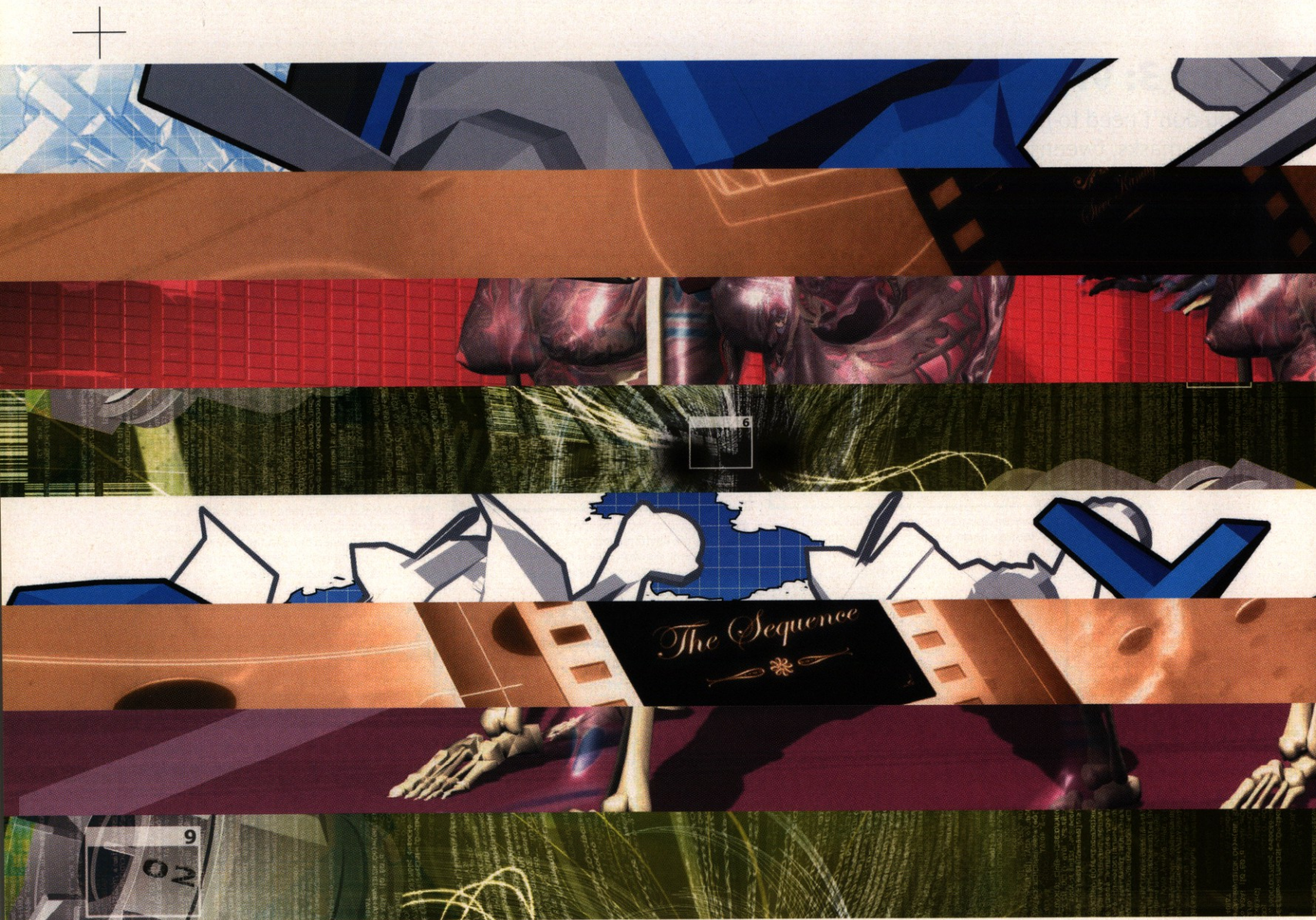
8 Open the Transform window. With the wedge selected enter 45 degrees in the rotate field and press the Copy and Apply button. Press this several more times until you have eight instances arranged around the centre.



9 Now use the Test Movie option under the Control menu to view the result.



This tutorial on video in *Flash MX* was originally printed in issue 31 of *Computer Arts Special*, 2002. Every issue of *Computer Arts* and *Computer Arts Special* includes a selection of great creative software tutorials. Never miss an issue when you subscribe on page 46.



3D & Effects

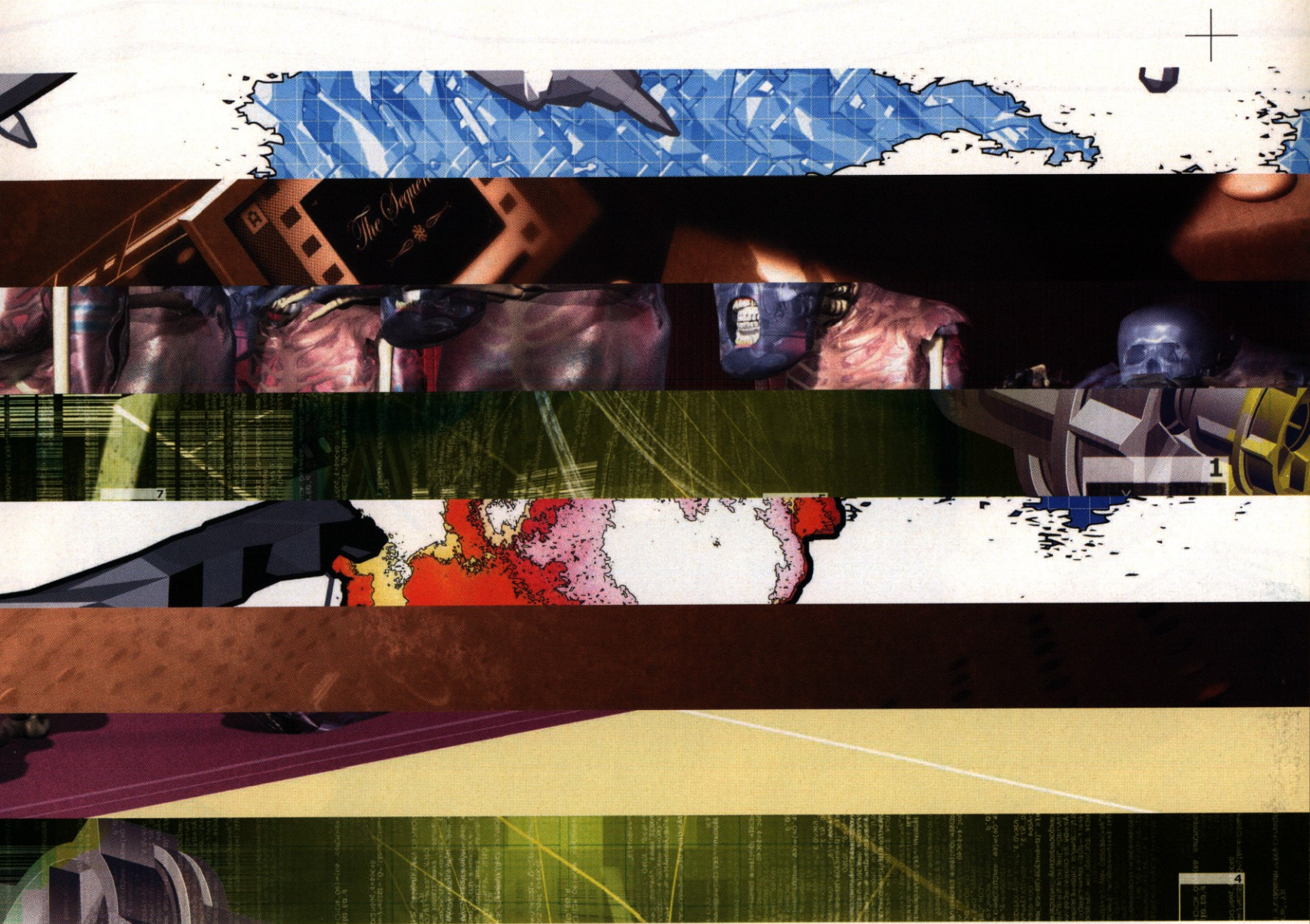
Model a fighter plane, create a zombie or put your best 3D creations into a stunning showreel – everything you need is here...

No-one would say that 3D modelling or video compositing are easy, but there are ways of tackling projects that will give you an edge. And there are also tricks you can use which achieve great results, without the usual frustration associated with this complex graphics work.

Here in the 3D & Effects section of the *Creative Collection 02*, we have a small selection of the very best tutorials from this field printed in *Computer Arts* and *Computer Arts Special*. You'll learn how to create the living dead without studying under Dr Frankenstein, model an incredible aircraft without falling into the

sordid ways of Howard Hughes, create *Matrix*-style intro titles without wearing dark glasses at night, and put all your best work into a showreel that might just get you noticed in the industry.

If you're looking to get into 3D or visual effects you've come to the right place. Keep reading *Computer Arts* and *Computer Arts Special* for more tutorials at this level, or try our sister magazine *3D World* in order to take the quality of your work and your 3D industry knowledge up another peg. In the meantime though, turn the page and brush up on your *plasma*, *After Effects*, *Poser* and *combustion* skills.



84 Build a fighter plane in plasma

3D modelling for the Web using *plasma*'s key features

90 Creating a showreel

Use *After Effects 5.5* to win that all-important client

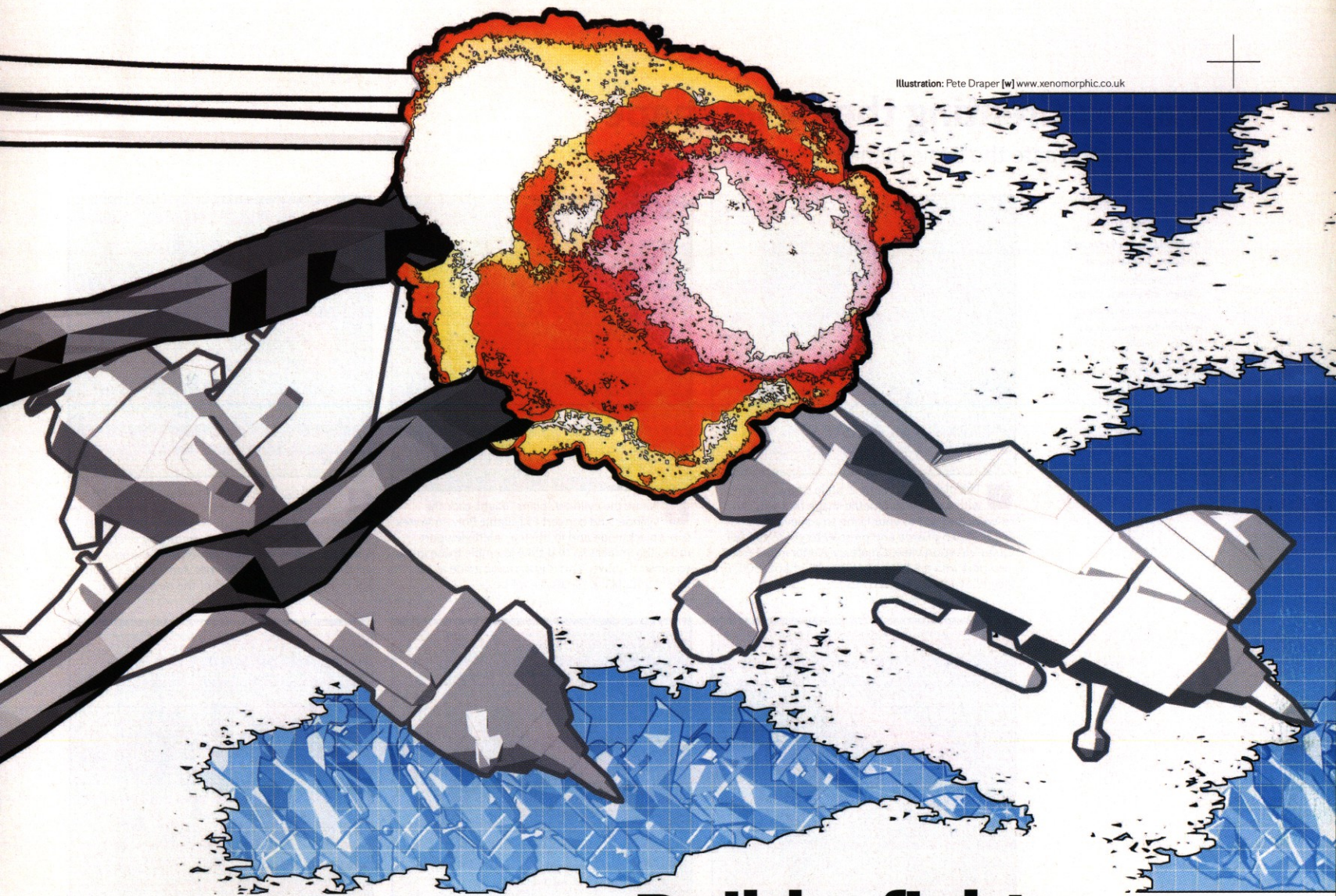
96 Zombies in Poser 4

Turn a default *Poser* figure into one of the walking dead

102 combustion 2

Master the particle system, text engine and Z-compositing





Build a fighter plane in **plasma**

Create and export this plane model for *Flash* and *Director*, using our step-by-step guide to *plasma*'s vast feature set...



Expertise provided by Pete Draper, who is *3D World* magazine's resident *3ds max* artist, and dreams of soaring high among the clouds... You can join him at [w] www.xenomorphic.co.uk



On the CD

You'll find a demo of *plasma* on the CD. The file `cas_plane.pdm` needed to support this tutorial is on the CD in the `Tutorial\3D&effects\plasma` folder.



iscreet's *plasma* is a fully functional piece of 3D kit that is streamlined, optimised and designed specifically for the Web developer. It also comes fully equipped with two renderers (raster and vector), a Shockwave exporter, hard body dynamics and more kit than you can shake a very large stick at. But we aren't going to be using many of these features here, because this tutorial is all about getting to know that ever-elusive Z axis.

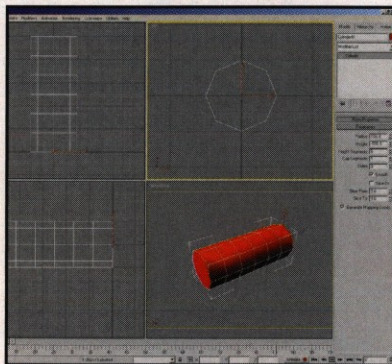
If you're a Web developer, or are just getting into multimedia, you may find that working in 3D is a daunting prospect; it need not be. Most Websites have some element of 3D incorporated into them, but the majority of these are just simple geometric shapes extruded and animated in *Flash*. While most Web developers aren't all that skilled in the third dimension, it is a progression that most will have to undertake at some point, so there's no time like the present to get started... >

Part 1: Creating the basic shape

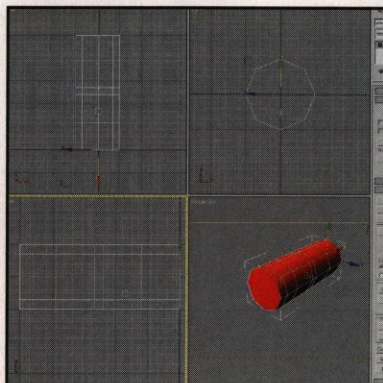
First, you'll create the basic plane hull and the nose cone...

3ds max 4 user?

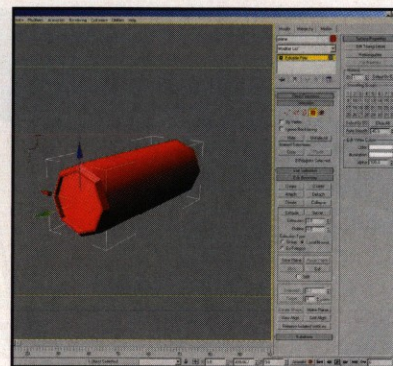
Although this tutorial is designed for *plasma*, users of 3ds max 4 and above should have no trouble reproducing its steps. Unfortunately, unless you also own *plasma*, you won't be able to perform the Shockwave export or Flash rendering steps at the end of this tutorial.



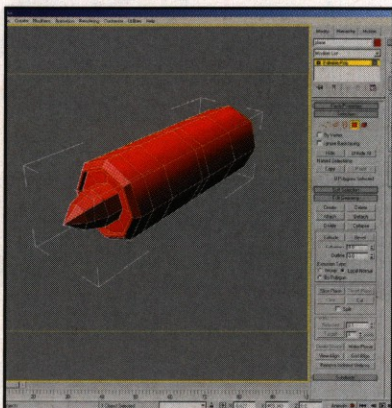
1 The plane's geometry is quite simple. Begin with a simple geometric shape that you can re-work and edit to your liking to achieve the end result. Open *plasma* and press W to get to the full Quad Viewport view. Create a cylinder in the front viewport with a Radius of 100, a Height of -500, 6 Height Segments and 8 Sides.



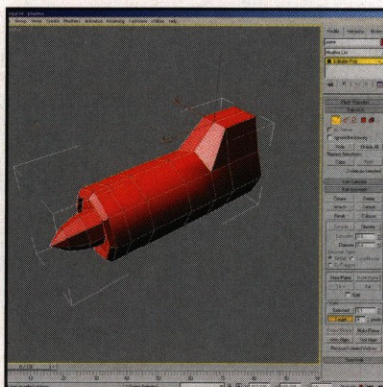
2 Name the cylinder 'plane'. Right-click the cylinder and convert to Editable Poly. In Vertex sub-object mode and in the top or left viewport move the vertices so that they resemble those in the screenshot above. This is just a basic guide as to where your plane's features will be.



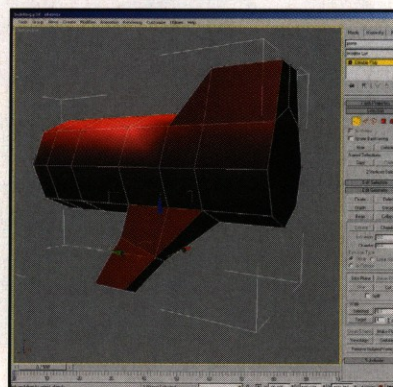
3 Select Edge sub-object mode and select the edges at the end of the cylinder. Chamfer these slightly. Select Polygon sub-object and select the end poly. Extrude this ever so slightly by selecting Local Normal as the Extrusion Type and simply clicking on the Extrude spinner. Amend the Outline spinner to bring in the sides of the new polygon.



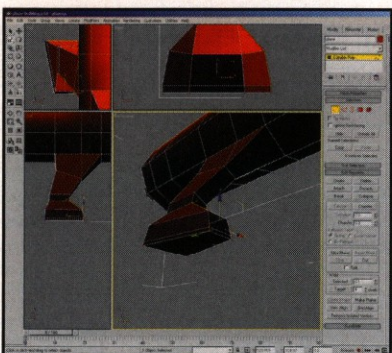
4 Repeat this process a few more times until the end of the cylinder has a rim and a flat central piece. Extrude again and outline inwards to create the boundary of the nose cone. Extrude out a few times, outlining to create the curve of the cone and collapse the final extrusion to a point.



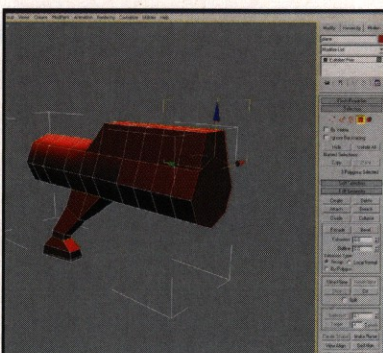
5 With the nose cone done for now, you need to concentrate on adding detail to other areas of the plane. Select the rear two polygons on the top of the cylinder and extrude them. Select Vertex sub-object and Target Weld the inner vertices to the middle ones to create an angled windscreen as shown in the screenshot.



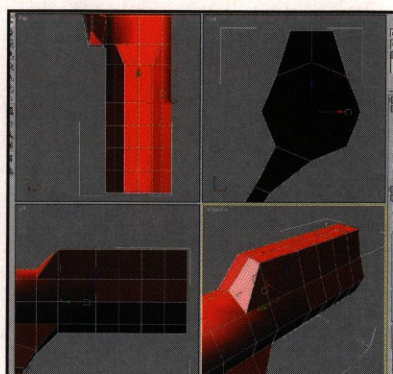
6 A little more complex this time but still the same procedure. Create the initial part of the front leg of the plane by selecting a couple of polygons close to the underside of the cylinder. Extrude and target weld the vertices of the rear of the leg to create a diagonal. Extrude another polygon before you create the foot.



7 Create the foot in a similar manner. With the base polygon selected, extrude and outline polygons until you have the basic shape. Then taper in the rear of the polygons by selecting the rear vertices of the foot and scaling them along the X axis.



8 Next you need to create more extrusions at the rear of the plane to add further detail. Select the rear polygons of the plane and extrude four times by the same amount by entering an amount in the Extrude spinner's text entry field (about 70 per extrusion should suffice).



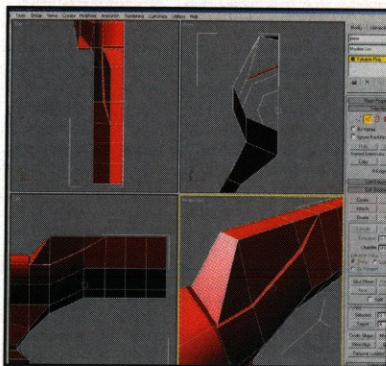
9 In the top viewport, select one side of the plane and delete the polygons. This will allow you to work on just one side for the moment as the opposite side can be easily recreated later on when you need it.

Part 2: Building the tail

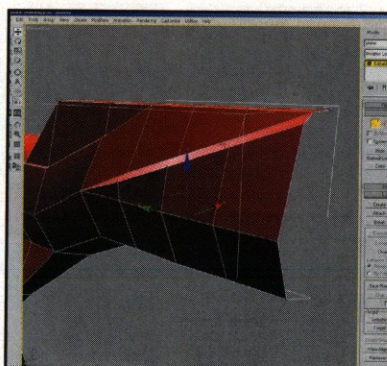
Now you've got the basic shape, concentrate on adding more detail to the rear of the plane...

Unsupportive

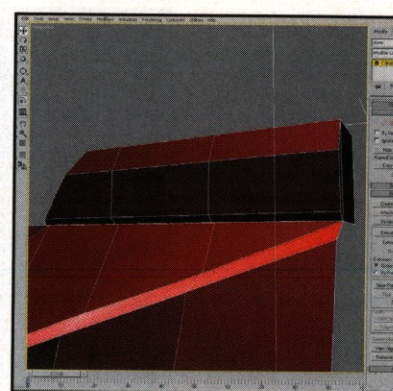
Be warned that if you want to bring the resulting model into 3ds max at a later date, you will have to model the plane in max itself. 3ds max does not support the plasma file type, yet plasma will import a 3ds max file.



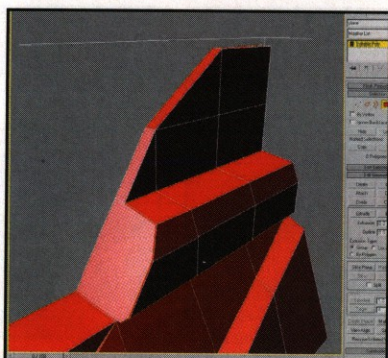
1 Create the edges of the cockpit window by target welding the vertices to create a diagonal line from the base of the cockpit to the top of the plane. Continue this towards the rear of the plane and move up the underside of the plane as illustrated. Select the edges around the cockpit and chamfer them to create a slight ledge.



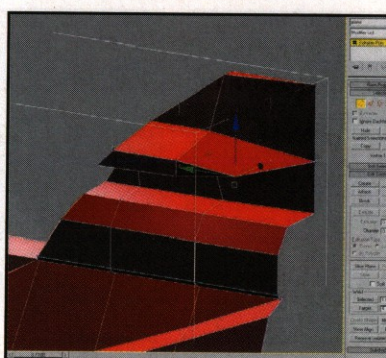
2 In the left viewport, divide the edges of the side's rear top three polygons to create a diagonal up to the top right of the plane. Create edges using these generated vertices to create new polygons. Extrude the polygons slightly and target weld the vertices at the base of the extrusions to create a diagonal ledge at the top.



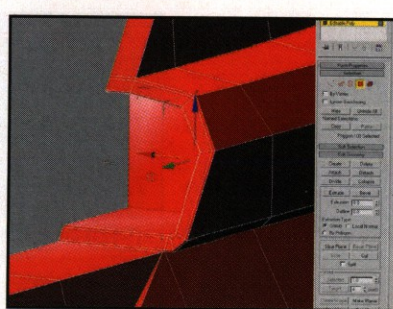
3 Select the top rear three polygons behind the cockpit, extrude up slightly and bring out the vertices to create a slight lip. Perform this another three times to create a rounded cylindrical shape, tapered at the front end to generate the shape of the rear engine intake.



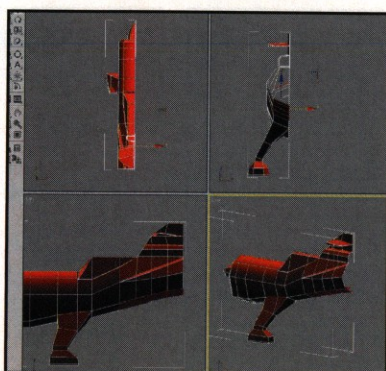
4 Bring in the top polys and extrude twice. Target weld the middle vertices as illustrated to create a diagonal toward the rear of the plane. To remove any harsh lines of the rear engine intake, select the edges of the tapered engine and chamfer them slightly.



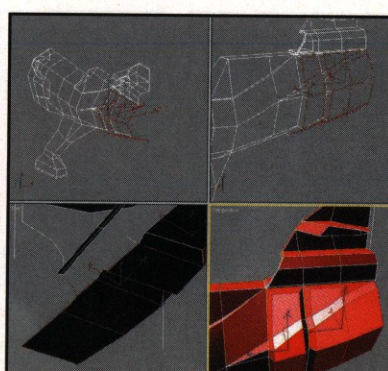
5 Target weld the fin's rear vertices so they form a point, as shown. Divide the edges of the rear fin, create new edges using the newly created vertices. Extrude slightly and drag out these new polygons. Amend the vertices of the new polygons to something resembling a small wing.



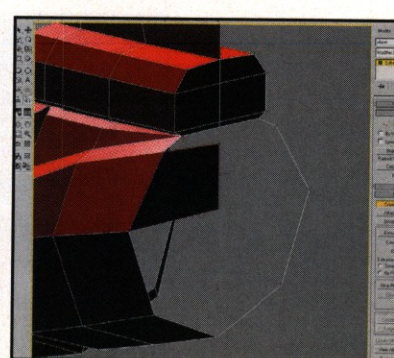
6 Select the front polygon of the engine intake, extrude slightly by clicking on the Extrude spinner, and outline to create a rim. Extrude slightly again and drag the resulting polygon inwards slightly. Chamfer the harsh edges if required. Ensure the vertices line up down the middle of the plane to create a nice seam for welding the two halves together later on, and delete the inner side polygon of the intake so the inside edge is open.



7 Delete any rear polygons of the plane as shown as they need to be recreated to form a point later on. Sculpt the rear of the plane so it is more tapered to a point by tweaking the odd vertex position or two, or moving and scaling polys or edges. Additionally, drag the bottom vertices of the nose cone down slightly to make the front of the plane more bulky.



8 Select the polygons at the rear of the plane and extrude them. With them still selected, outline them to create two chamfered sections: one smaller section toward the front of the plane and the other larger one at the rear. On the underside, again ensure the vertices line up along the seam and delete the unwanted polygon to create a continuous open side.



9 In Vertex sub-object mode, move the vertices along the back of the rear engine to create new vertices along the seam. Using these new vertices, create new polygons, working in an anti-clockwise manner to ensure the polygons aren't flipped. Clone the plane, mirror it and attach it to the original. Select the vertices along the middle of the plane and weld. Create vertices and polys as before for the bottom rear of the plane.

Part 3: Adding wings and struts

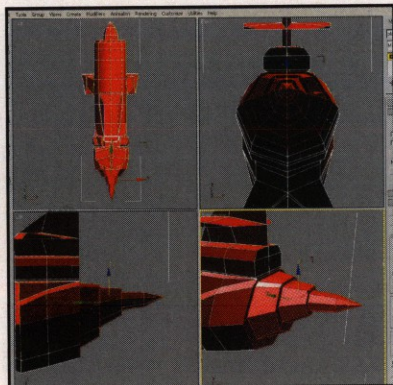
Finishing off the detail to the rear of the hull and adding the wings and support struts...

Familiar interface

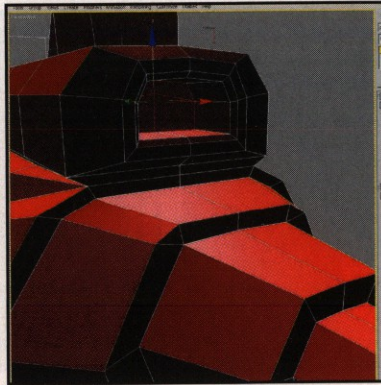
As *plasma* is designed for the Web developer, its user interface is tailored for these needs. Existing 3ds max users will notice a similarity, yet will wonder where some items have gone. Think *Photoshop* or *Dreamweaver* user interface and all will be well.

Special effects

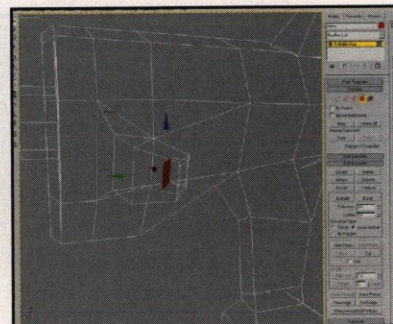
For the *Flash* render, add extra detail to the scene by creating some basic special effects. Tracer fire can be easily created using a simple particle system, with the speed cranked up and with a small surface area. Link this to the plane's gun turrets and as the plane is animated around the scene, the particles will be emitted. However, particles are not supported by the Shockwave exporter.



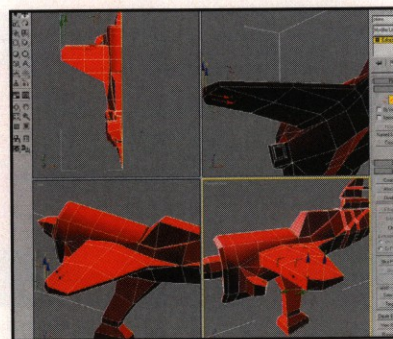
1 Using these new polys at the bottom rear of the plane, extrude slightly and outline to create an inset. Extrude again and taper the extrusion slightly. Perform this operation another two or three times, and collapse the final extrusions to a point.



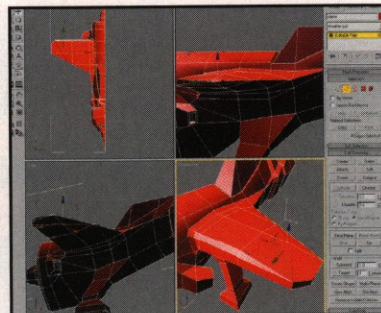
2 As with the front of the rear engine, chamfer the outer edges, extrude and outline the rear polygons slightly (being careful not to create an overlap of polygons when performing the outline) and extrude slightly. Drag this final extrusion back inside the engine to create the outlet.



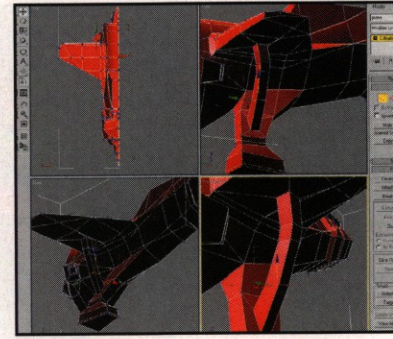
3 Delete the other side of the plane as before. Select one of the front polygons as illustrated and extrude the vertices to create an extruded triangle. Perform this again and finally extrude the polygon outwards so it runs slightly parallel with the plane's hull. Chamfer, extrude and outline as before to create an inset polygon for the exhaust. To prevent polygon distortion, create new edges alongside the base of the exhaust as shown.



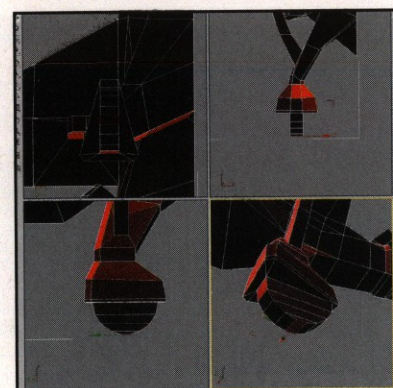
4 Divide edges to create the rough shape of the wing on the side of the hull and create edges using these vertices to generate polygons. Extrude and move these polygons out from the plane's hull. Perform twice more, then target weld and move vertices until the desired shape is achieved. Chamfer the pointed edge of the wing.



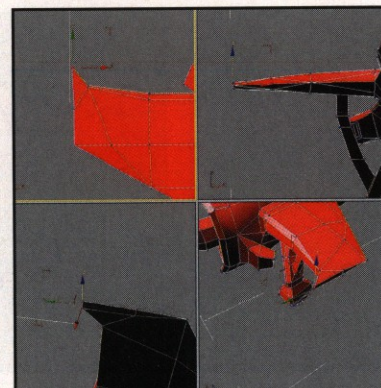
5 Weld the vertices of the rear of the wing as shown so they form a pointed edge. Select the edges where the wing meets the plane's hull and chamfer them slightly to remove the harsh join. Add more curvature to the front of the wing if desired by chamfering at the same time as the wing/hull join chamfer. Add additional edges in the wing as required to remove polygon distortion.



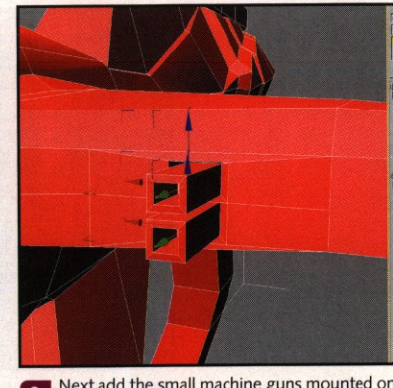
6 To add the support strut, extrude a polygon on the underside of the wing slightly, outline and reposition it. Extrude this smaller polygon several times, rotating as you extrude so the end polygon is close to the front wheel support. Extrude slightly, delete the two adjoining polygons and target weld them together.



7 To create the wheel, select the underside polygon of the foot, extrude and inset. Amend the vertices so a rectangle is formed. Extrude this rectangle another four times. In the left viewport, scale the vertices to form a semi-circular shape. Chamfer the edges of the leg to remove any sharp edges as shown.



8 To add a little more character to the plane, select the chamfered polygon on the wing and extrude it. Target weld the inner vertices to the wing to form a point to the end of the wing. Reposition the vertices in the top viewport as necessary to achieve the desired look.



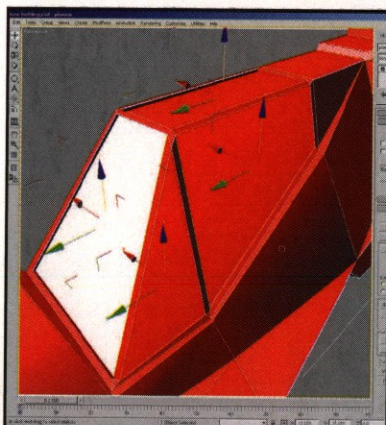
9 Next add the small machine guns mounted on the plane's wing. Select two of the front polygons of the wing, and extrude and inset using the By Polygon extrusion type. Re-shape the polygons to form squares and inset the resulting polygons back to create a recess. Extrude to form the gun's barrel, then outline an extrusion and extrude back to form an inset.

Part 4: Exporting the finished model

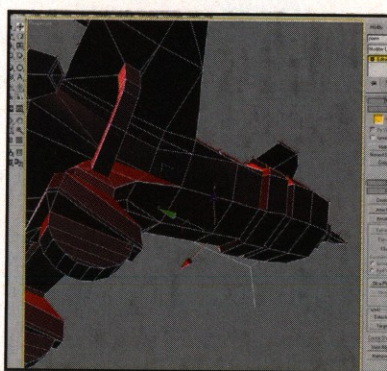
Add the final details to your mesh, and you're ready to take to the skies!

Export limitations

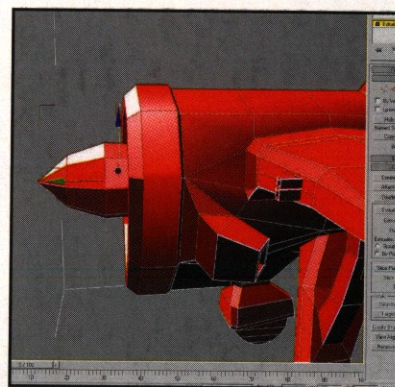
Smoke trails can be created using simple tapered cylinders or cones with a noise modifier added to randomise the positions of the vertices. Again, if this modifier is animated, the Shockwave exporter will not support the animation. Check the manual for more information about Shockwave export limitations.



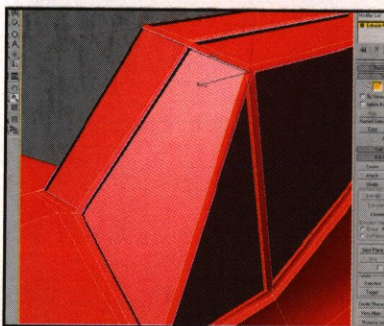
1 Select the edges of the cockpit windows and slightly chamfer them. Select the resulting inset polygons and extrude them backwards slightly, ensuring that no polygons overlap.



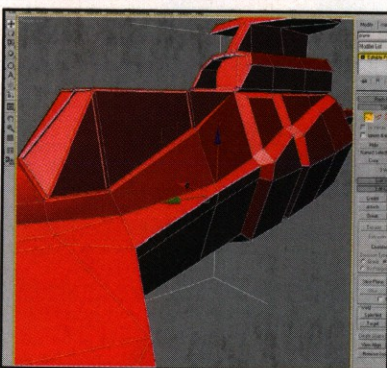
2 With the majority of your plane almost complete, you can now re-attach the other side of the plane. Copy the plane object, mirror and attach it to the original. Weld the seam down the middle of the plane, ensuring that there are no overlapping polygons, two-sided polygons or holes in the mesh.



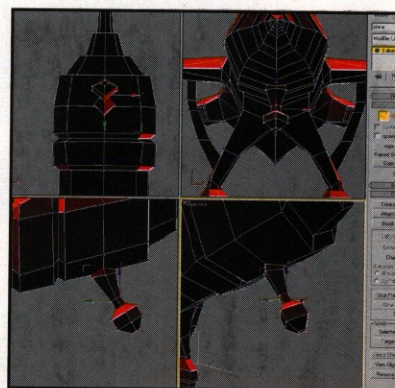
3 To add a little more detail, select the front polygons of the plane – the area around the nose cone, just before the exhaust pipe. Simply extrude these polygons using Local Normal Extrusion Type to create a slight outset of the nose cone.



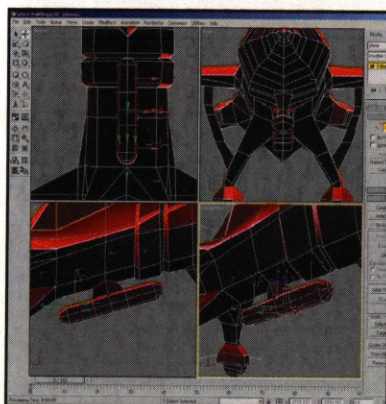
4 A slight clean-up operation is needed next. The chamfering around the cockpit windscreen beams had been left up with stretched polygons. Add additional edges to remove the stretching on both sides of the plane and tidy up the polygons in the middle of the cockpit by dividing the centre edge, creating new horizontal ones and deleting the diagonal edges.



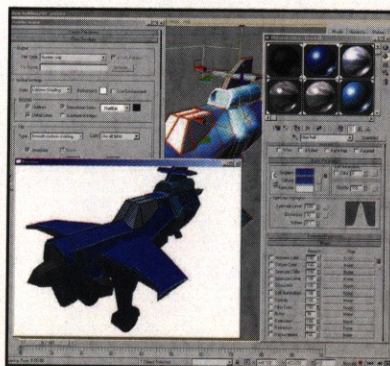
5 The wing comes to a point, as do the vertices running to the rear of the plane. To create one long ridge, select the vertex and chamfer it. Delete the resulting polygon and target weld the vertices together to form the ridge. Perform the same operation on the opposite side of the plane.



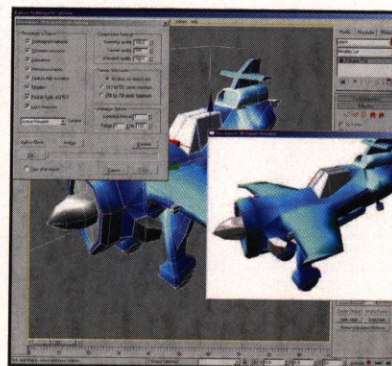
6 Create the rear wheel by chamfering the vertex to generate a polygon. Extrude this poly slightly, move and rotate it so it forms a slight angle. Continue extruding and outlining/scaling to form the shape of the wheel.



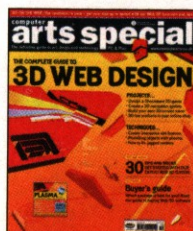
7 Build the tank's stem in the same way as the wheel, by chamfering a vertex and extruding. Create the main barrel separately by either creating polygons separately and welding, or creating a separate cylinder, chamfering the ends to curve them, and attaching and welding it to the stem.



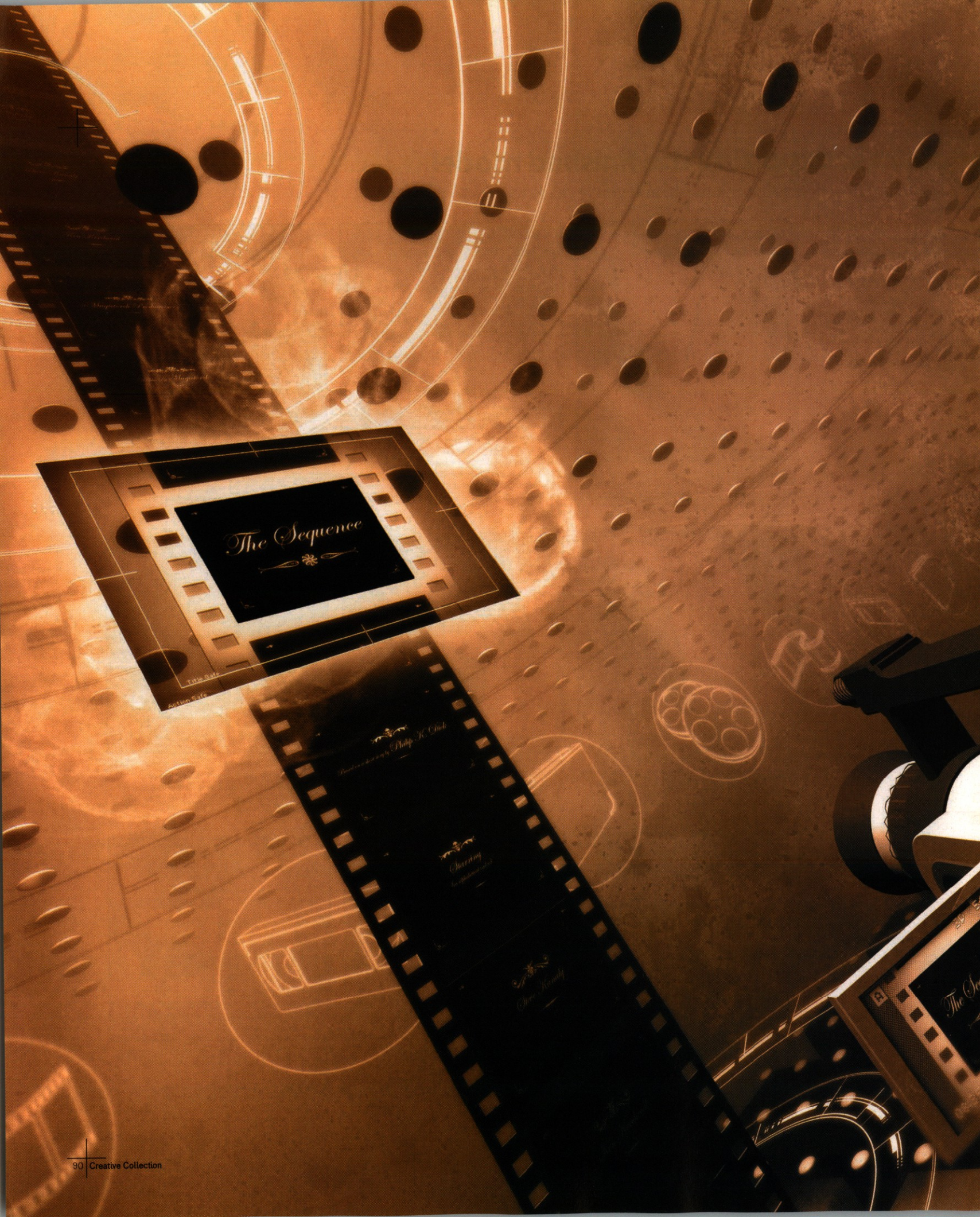
8 Create materials for each element of the plane: the hull and wings, windows, engine intake, propeller nose, tyres, etc. Select these individual elements in Polygon sub-object mode and assign the materials to the selected polygons. Open the render dialog and change the renderer to Flash Renderer. Change the style from the Global Settings menu to your own tastes and render off the scene.



9 You can also export this model to Shockwave by selecting Publish Shockwave from the File menu. In the Export Options box, amend the compression settings as desired (not much compression is required due to the model having a low poly count). Enter a filename and export the model. Check on View after export if you'd like to see the model in a Shockwave window.



This tutorial on plasma was originally printed in issue 37 of Computer Arts Special, 2002. Never miss an issue of Computer Arts and Computer Arts Special by subscribing on page 46.





Creating a showreel

Use *After Effects 5.5* to create an impressive vehicle for your projects – a stylish personal showreel with an animated logo...

You may be a great animator or 3D modeller, but in a client's eyes, you're only as great as the work you can present to them. You can increase the impact of your best work by showcasing it within a showreel that uses creative software to the full. In this tutorial, we use the features within *After Effects* to show you how to get noticed.

When a client is approached with a showreel, it's often an unexciting linear reel. Nothing wrong with that, of course; it does the job. But we're going to take this a step further, showing you how to jazz up your showreel with some *AE* trickery to make sure it stands out.

Most showreels are on video. This is also fine, but if you can create a complete interface that brings up your best animations individually, telling

the potential client a little about the project, you can pretty much guarantee the wow factor.

We'll be creating a 3D rotating logo that's a little bit more special than your bog standard spinning 3D text, plus a repeating morphing background and a cool way of displaying your animations and project descriptions.



On the CD

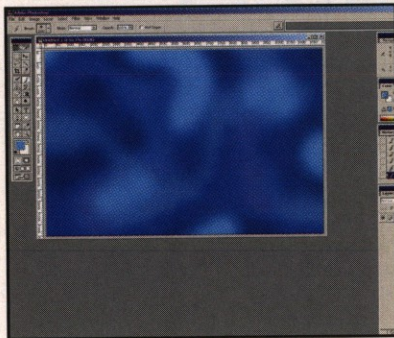
The *After Effects* file and all the footage used in the project, supplied by Bigimpact TV Ltd, can be found on the CD in the folder Tutorial\3D&effects\After Effects – when viewing, please note that because of limited CD space, a more lossy codec was used. Expertise by Mark Towse: [e] mark@bigimpact.tv or go to [w] www.bigimpact.tv.

Part 1: Creating a looping background

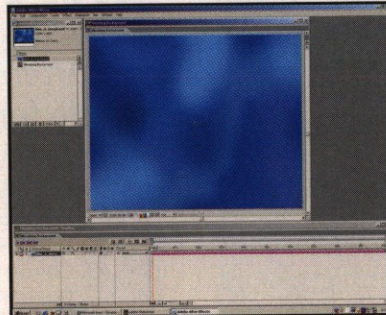
Before we begin work on the showreel in *After Effects*, we'll start the ball rolling in *Photoshop*...

Composition

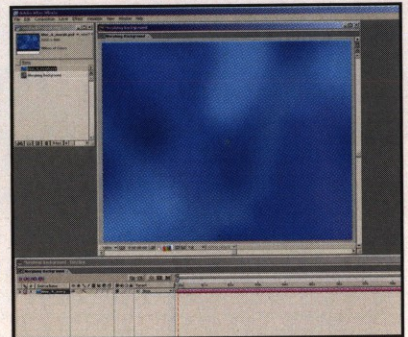
In this tutorial, we nested the logo composition within the main area in which we were working. Nesting or pre-composing, as it is known within the industry, is the process of working on a section of a project as its own individual mini project, like the logo, and then using all the elements before they have been rendered within another part of the project. The benefit of this is that you can apply effects and transformations/animations to the group of elements as one, rather than applying everything on each layer and element. In HTML, for example, you can create a table within a table to position, and then move the main holding table around, also moving the table inside. This is a simplified version, but it should help you understand the concept.



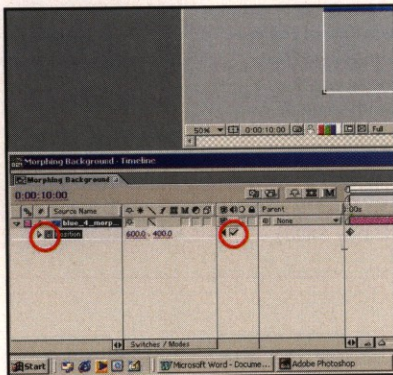
1 In *Photoshop*, create a new image that's 1200x800. Colour it randomly in varying shades of blue. You can use blurs to blend the edges together. Don't worry about detail too much, as *After Effects* will be converting the end result to a smooth blending image.



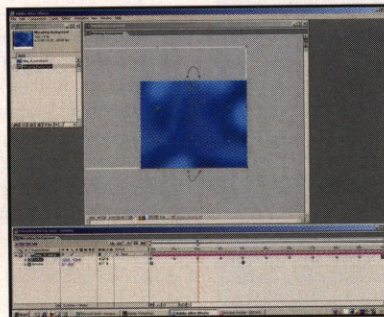
2 You can also use the Blue_4_morph.psd file on the CD. Open *After Effects*, create a new composition that's 10.01 seconds long, has a screen size of 720x576 and a framerate of just 1fps. Name it something suitable, such as 'Morphing Background'. Import the blue file you've just created, and drag it onto the timeline.



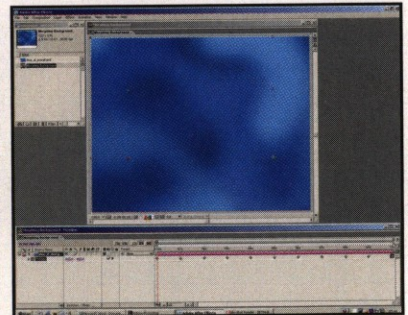
3 Zoom out in the viewer window to 50 per cent. You'll see the edges of the larger *Photoshop* file overlapping the main screen. Position the static file flush in the top left-hand corner. Select the static in the timeline and Press P to access the position twirly.



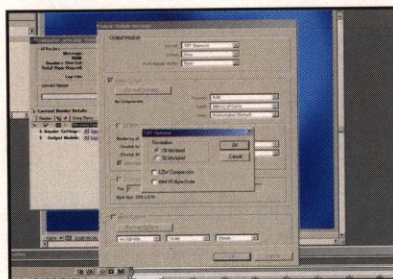
4 We want to place keyframes at each individual second, so create ten keyframes by moving the timeline head to one second, clicking the miniature stopwatch (circled). For subsequent keyframes after the first, you must click the empty box, which will then fill with a tick and add a keyframe to the timeline.



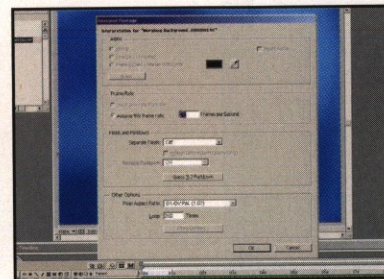
5 We want to move and rotate the large static image on each keyframe, so that at each of the ten keyframes there's a different image. This is why we created the image much larger than the final destination screen. Use different corners for the first four keyframes, then rotate the image 90 degrees (press R for the Rotate options, at the fourth second, placing one keyframe and rotating 90 degrees) and repeat the different corner placements. Press U to show only the settings that have a keyframe.



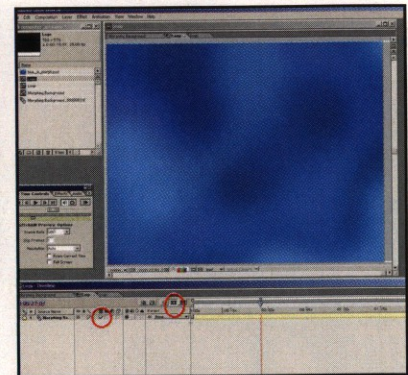
6 Don't worry about the multitude of dots on the screen, this shows how the image would move if we were actually animating the static image. If you drag the timeline head you can see the image moving; we're about to stop this. On each keyframe, right-click and select the Toggle Hold Keyframe option. This removes any animation between keyframes, and animates in jumps rather than smooth motion. Make sure you've positioned the image in ten different ways.



7 Now we'll render the sequence as a TIFF sequence. From the Composition menu, click Add To Render Queue. Click on Output Module Lossless. This brings up a new dialog box. From the format dropdown, select TIFF sequence, and select 24-bit (32-bit would contain alpha channel information). Then click OK and Render. The TIFFs will be sequentially numbered; import these files from their destination folder to the project via the File menu. You need only select the first image of the sequence and click the TIFF sequence box.



8 In the Project window, click on the 1 TIFF sequence file. Select Interpret Footage>Main from the File menu. Set the looping option to x200. Set the framerate to 1; although we'll create a new comp that's 25fps, our TIFFs will only be coming once per second. Therefore *After Effects* will use frame blending to interpolate in between 25 frames, creating a smooth looping background, looping 200 times. Create the new comp, called Loop, set the framerate to 25fps and make it 1 minute 20 seconds long.



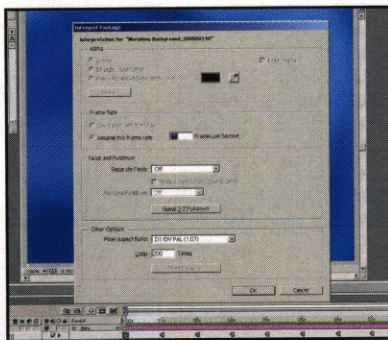
9 Drag the TIFF sequence to the timeline. You'll now see that the Frame Blending option is on. You need to check this and click the Activate Frame Blending button. Both of these are circled. Now you have one perfectly blended, looping background for use in your project.

Part 2: The logo

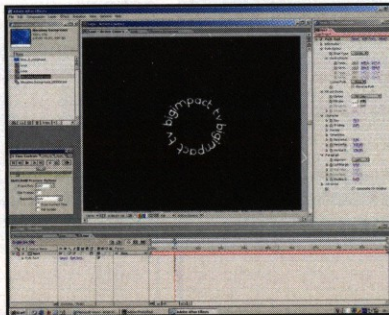
Next up is a mighty morphing power logo. Start by creating a new composition in *After Effects*, calling it Logo...

Different TV settings and framerates

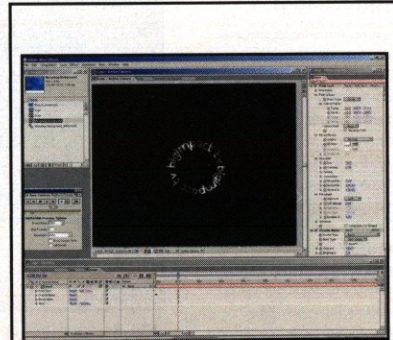
We are operating on UK PAL settings, which is one of the main screen resolution settings. The other biggy is NTSC, used in parts of Europe, Asia and the USA. The standard framerate in the UK is 25fps, NTSC uses 29.97 and the screen size is slightly different too, 720 by 486 (although there are several variations which differ by a few pixels. The other main TV setting is SECAM, but this is fairly rare; the main country using this format is France.



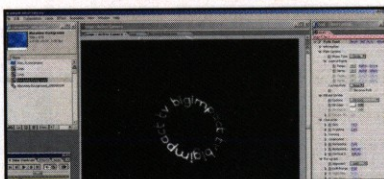
1 Your new composition should be running at 25 fps, with a 720x576 screen size and a length of 10.01 seconds. We're going to create a 3D, spinning, rotating, morphing logo; not one of those 3D text spinners which was used so much last year. Where we use the 'Bigimpact TV' text, use your name instead.



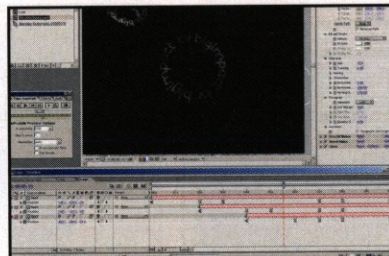
2 Create a new solid from the Layer menu of any colour. From the Effect menu, use Path Text and type in your name, twice. The Path shape should be circle, character size 72 and tracking 2. Twirl down the Control Points twirly. You should manually alter the size of the circle using the control points, so the text just forms a perfect circle, with both your names separated by the correct amount.



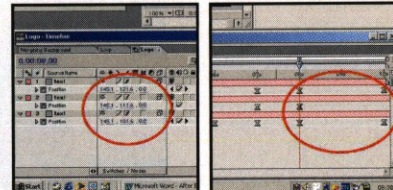
3 Now add the following effects from the relevant place in the Effects menu, to make the text a lot more interesting: Fractal Noise from Render (default settings), Bevel Alpha from the Perspective menu (edge thickness 2), and Glow from the Stylize menu (default settings).



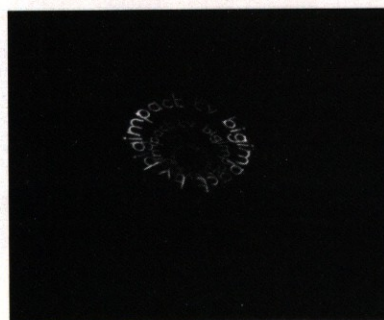
4 Click the Activate 3D button and press P. You now have access to the Z controls, instead of just X and Y. Set the Z axis to 2000. This zooms the layer away from the screen. Place a keyframe at 0 and another at 2 seconds, 3, 7, 8 and 10. At 2 seconds, set the Z value to 0. Press R on the Rotation controls and set keyframes for X and Y at 0 and 3 seconds. Keep all settings at 0 at the start of the timeline, and change the X value to -40 and the Y value to -20 at 3 seconds. Create a keyframe at 0 for the Z rotation settings, and click on it. Click the right arrow, and input 6 in the full rotation box where circled. (Click the right arrow first). Press S to activate the Scale twirly, and change the second keyframe at 2 seconds and 3 seconds. At the third second, change the scale values to 60 per cent.



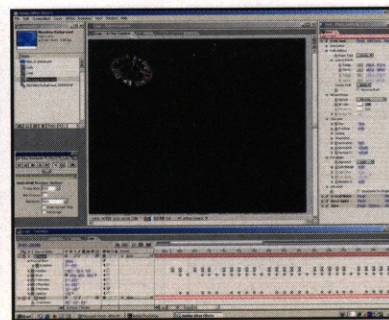
5 Click P to reveal the Position twirly. At the 3-second keyframe, put in an X value of 145.1 and Y values of 101.6. At the 8-second keyframe, change the Y value to 121.6. Copy and paste the layer, then shift the new layers in the timeline so one starts at 2 seconds; the next starts at 4 seconds. For the top and bottom layers, shift the 7-second keyframe on the first layer, and all keyframes after, so that on the second and third layer they are also at 7 seconds, and so forth. For the centre layer, delete the 10-second keyframe (we don't need it as the middle layer will never change its present position).



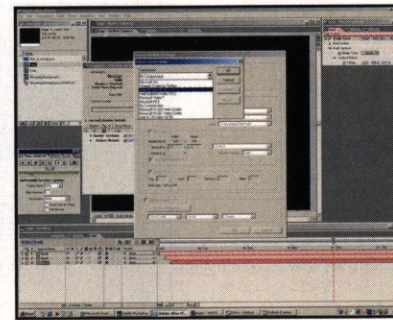
6 You'll see we now have three rings rotating, and shooting up to position themselves in the top-left corner of the screen. We must modify the positions, scales and rotations slightly now for detail. At the 7-second point, the text's Y positions should be 101.6, 121.6 and 141.6 for the consecutive layers. At 8 seconds we want 121.6, 116.6 and 101.6. These are the final values, and we will alternate further keyframes for the top and bottom layers, so they rise and fall over time. At the 10 second keyframe, swap the values of the top and bottom layers, so 101.6 and 121.6 swap over. Press S to activate the Scale twirly, and change the second keyframe of the two new layers to 40 and 20 per cent, as you did at the end of step 13.



7 Now, get sneaky. Create scale keyframes for the top and bottom layers at the 8-second mark. Create more at the 9-second mark, and swap the values for the top and bottom layers so 20 per cent scale becomes 60, and vice versa. As you can see, what is happening is the bottom and top layers grow and shrink then pass through and around the middle ring. How cool is that? Now we need to extend the sequence for the duration of our reel.



8 From the Composition menu, select Composition Settings. Modify the length of the comp to 120.01. You must copy and paste the scale and position settings of the top and bottom layers, until the end of the sequence. Also, create a keyframe at the end of the 1 min 20 seconds for Z rotation, setting the rotation to 12 full cycles, 13 for the third layer and 14 for the fourth layer. The three circle logos will thus spin at slightly different speeds.



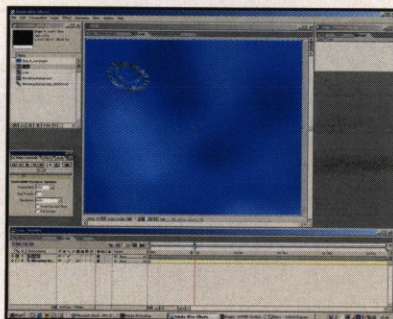
9 Perform a render by adding to render queue and click on the 'lossless' text. Create a MOV or AVI and render, then re-import. This is to speed up rendering times later. To get the file size down without losing too much quality, select Format Options, to select a codec. We have used Indeo Video 5.10, which is an AVI compressor. Sorenson or Sorenson 3 at full quality is the rough equivalent for MOV files. Import the rendered file.

Part 3: Winding in your reel

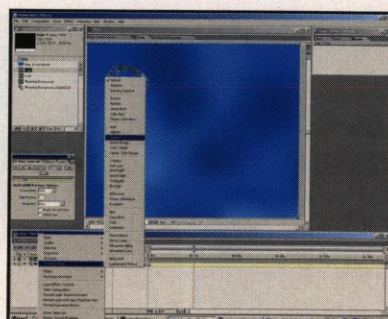
Time to import clips, position our keyframes and control the motion. We're aiming to create a showreel that can easily be extended, so you can tailor it to your needs...

Aspect Ratios

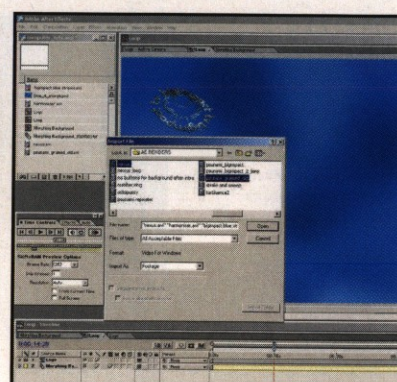
If you are rendering for computer distribution rather than video, you should use square pixels, because monitors also have square pixels. Televisions, however, have squished pixels: slightly wider than they are high. With this in mind, when you bring what looks square or circular on a TV screen into a computer, it will appear higher and squashed from the side – as the computer doesn't compensate for the wider TV pixels. Fortunately, *After Effects* does a clever thing: by using *Interpret Footage* (as in the tutorial) you can change any footage to or from any type of pixel aspect ratio at the click of a mouse!



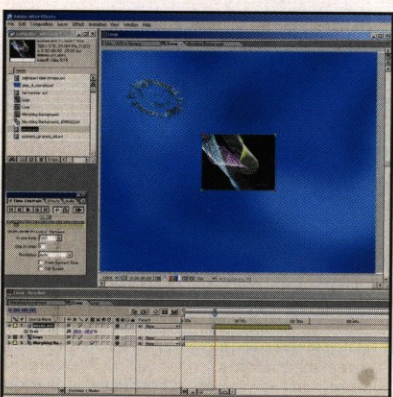
1 Re-open the Loop comp. Drag either the render you just made, or the Logo composition onto the timeline, depending on your computer's power (we dragged the comp). This composition is now considered to be nested (or pre-composed), which means that whenever you apply a single transformation or filter, all the layers contained within the composition are affected.



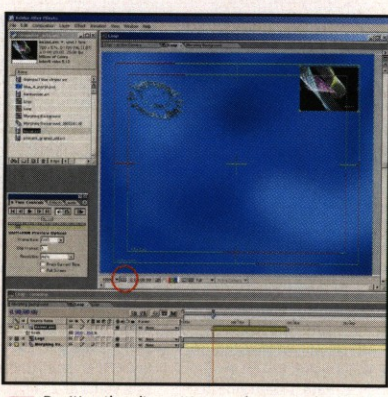
2 If you're using the rendered version, you can't help but notice that the screen is black, the logo is white and no looping background can be seen. A quick trip to the Blending modes will sort this out. Right-click on the logo render for the shortcut to many of the useful *AE* commands, then select *Transfer Mode>Screen*. The black will be removed, leaving you with the basis for the showreel.



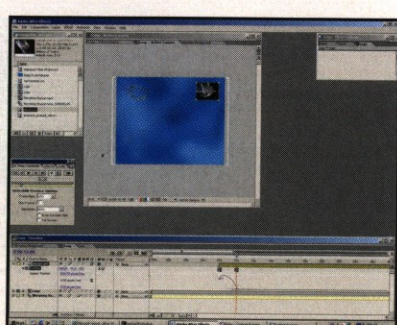
3 From the CD, import the following files: *Bigimpact Blue Stripes*, *Harmoniser*, *Nexus* and *Psunami_grained*. These are some of our ancient mini renders, which you can use freely in any of your future projects, commercial or otherwise.



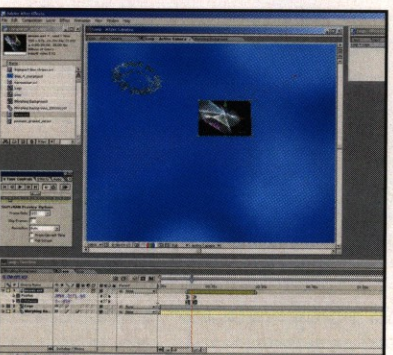
4 First up, drag *Nexus* to the timeline, and set it to start at 8 seconds – just after the logo zooms up to the top left-hand corner. Make sure it is on top of the stack, or it'll be obscured by the logo and background. Press S, and scale to 20 per cent.



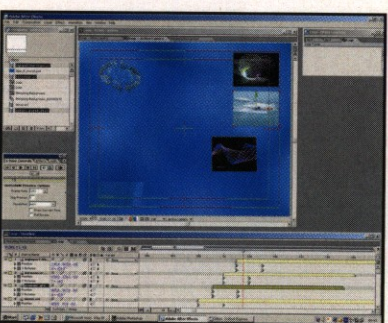
5 Position the clip so it's near the top right-hand corner of the screen. We're going to make it zoom smoothly up to the corner, using 3D to make it 'swoosh' into place. Press P to open the position twirly. Click the Safe Region guide (circled) to make sure the movie stays within the Action Safe region.



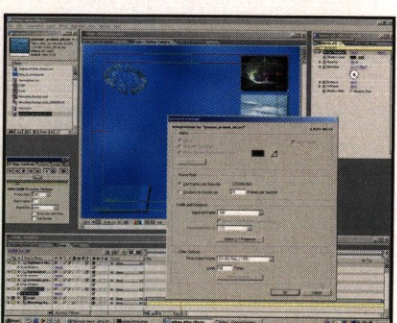
6 Place position keyframes at the start of the clip and at the 10-second mark. Also, click the activate 3D button. At the 8-second keyframe, drag the clip backwards, just off the bottom left-hand corner of the screen. Select both keyframes. From the Animation menu, select the keyframe assistant *Easy Ease In* (this slows down the motion of the clip towards the end of its journey, for a slightly organic look). The shape of the keyframe should change.



7 Press R to open the Rotation twirly. Again, set keyframes at 8 and 10 seconds for X rotation. Change the value of the first keyframe on X to -80. Select both the keyframes and use *Easy Ease In*, like in the previous step. You now have a swish clip zooming on the screen and slowing its operations down slightly at the end.



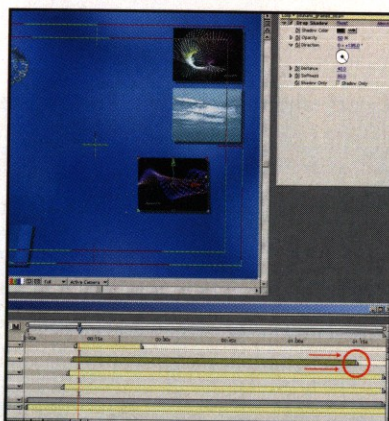
8 Repeat the process for the other three clips, staggering their start by 1 second each and positioning the clips below each other. To do this quickly, drag and position the clips on the timeline, then copy and paste the position and x rotation keyframes. Next, press U to open the twirlies for the elements that have keyframes on the *Nexus* clip and simply paste onto the subsequently imported clips.



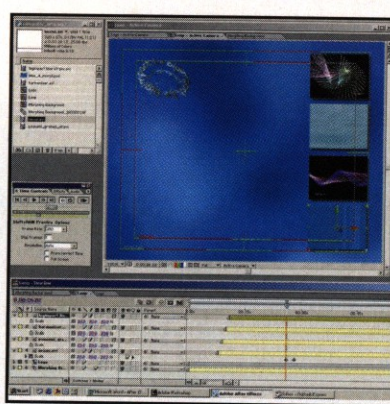
9 Select all the layers and apply the effect *Perspective>Drop Shadow*. Make the shadows 50 per cent opaque with a distance of 40 and softness of 20. Select each clip in the project window individually (where the clips initially appear when they're imported into *AE*). Go to *Interpret Footage>Main* from the File menu. Make each clip loop about 10 times, to ensure they keep rolling throughout the 1min 20 of our showreel.

Extending the showreel

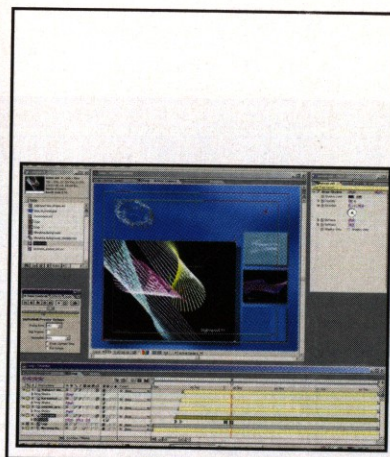
This project only uses four items for its showreel. If you have lots more items that you wish to include, you will have to do a few things to make your showreel longer. First, remember to use interpret footage to make everything loop longer. Also, you can copy and paste the scale and position frames of the logo. You can shrink the clips further still, to allow enough room for all the ones you want to use.



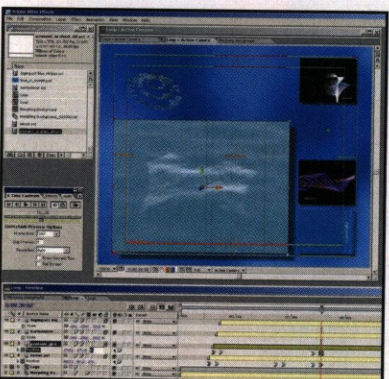
10 On the timeline, you now have extended clips; you simply have to drag the cropping triangle to the end of the timeline to extend the clips. You can actually loop clips as many times as you like, to tailor the length of showreel to what you think will be most suitable for your prospective clients.



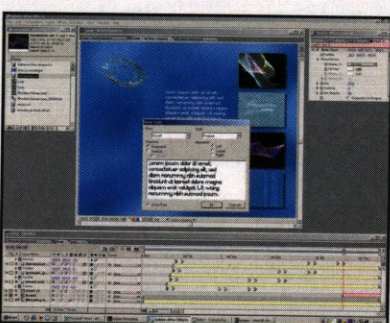
11 For the Nexus clip, create a keyframe at 28.02. The initial clip was 20.02 seconds, and we started it at 8 seconds. At this point, the next loop begins, and thus the point at which we want to have the clip in the centre of the screen, beginning the next loop. Create a keyframe at 26.02, where we'll begin its movement. Also, create scale keyframes.



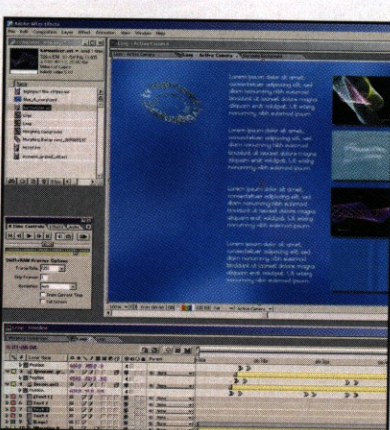
12 At the 28-second keyframe, scale the clip to 60 per cent and position it to just inside the bottom-right corner's action safe region. Use Easy Ease In on both keyframes again.



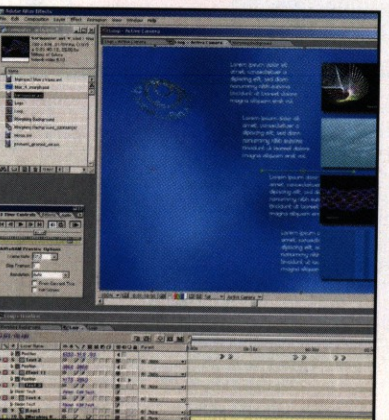
13 The next clip, Psunami_grained, is a meagre 10.02 seconds long. As the Nexus clip is kind of repetitive, we'll only let it play 8 seconds and get ready for our next clip to zoom in and begin its 10-second cycle. Create keyframes on Nexus for 36.02 and 38.02 and just reverse the keyframe positions from before. Create similar keyframe positions for all the remaining clips. There'll be some time left over in the 1 min 20 clip we're creating.



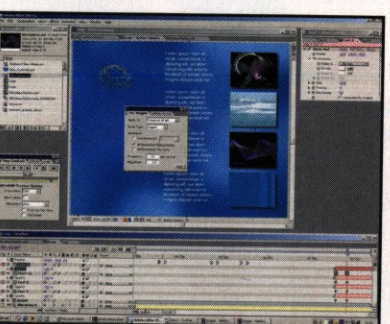
14 Now for some final finishing touches. All the clips should be finished by 108.08, leaving a not-too-great 12 seconds; but that's long enough to add a good, basic flickering text effect to tell the client what they've witnessed. Create a new solid layer from the Layer menu and apply the Path Text effect from the Effect menu. Call it text 1. Select your favourite font – we've used Azrael. Type in the name and some details about the relevant clip; we're using some Latin. Align to the left, use the relevant tracking and line spacing for your chosen font. Change the colour to white.



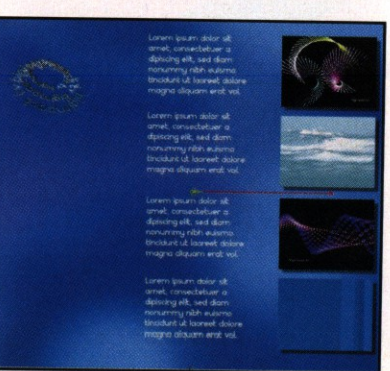
15 For speed, copy the layer and position the text in the relevant place, then simply click on Edit Text in the Effect controls box, rather than creating a new solid and applying the effect. Even better, all of your tracking and spacing changes are copied too! Ensure the text layers are positioned below the video layers in the timeline stack.



16 Create position keyframes at the start of each text layer, then at 2 seconds later for the first layer, then 3 seconds, then 4 seconds and then 5 seconds. Now, at the first keyframe of each layer – move the text to hide behind the clip it is next to, so it will slide out – each progressively slower, from behind the relevant clip.



17 For a final touch, create opacity keyframes at the start of each layer, and for all four text layers at the same point as the layer with the longest time to roll out (text 4 in our AE file example). Set the keyframes at the start to opacity 0. Here's the sneaky bit: go to Window>The Wiggler. Select Noise Type Jagged and increase the frequency to 10 per second. Select the opacity keyframes, both keyframes on each layer, layer by layer; not all at once or The Wiggler won't work. Click Apply. This will randomise the opacity between 0 and 100, giving a subtle, flickering effect.



18 In a meagre 36 steps, you have a complete template for your own showreel, including a groovy logo, animated looping background, swish clips and clip descriptions. Now simply apply Add To Render Queue from the Composition menu and click that funky button. Adding a subtle soundtrack in the background may be a good finishing touch as well, but sometimes a client may find the noise distracting from the clips you have produced. It's your call!



This After Effects tutorial was originally printed in issue 75 of Computer Arts, 2002. Every issue of Computer Arts and Computer Arts Special includes a selection of great creative software tutorials. Never miss an issue when you subscribe on page 46.



Illustration: Artist: Daniel Mackie [e] danielmackie@btinternet.com



Zombies in Poser 4

We're going to turn a default *Poser* figure into one of the walking dead, using v4 of Curious Labs' premier 3D figure design software...

Poser is a powerful character animation tool that comes with an array of ready-to-use figures and models. Learn how to master the feature set of version 4 by creating something decidedly unfriendly: corpses revived by witchcraft...

Zombies have grabbed popular culture by the throat and never let go. They've shuffled onto the silver screen (*Night of the Living Dead*), chomped their way through games (*Resident Evil*), and even given TV's *Buffy the Vampire Slayer* the odd turn. Now it's time to set one roaming from within *Poser 4*.

There are many ways of customising the default *Poser* mesh to create unique figures for a variety of creative projects. This tutorial will focus on how to create a character by modifying the default figure's textures. Thanks to transparency maps, we'll be able to see through parts of the character, right through to the bones beneath. We'll also focus on how to light and render the figure to composite it successfully, using a photographic background in *Photoshop*.

While this tutorial was undertaken in *Poser 4*, you can also apply the techniques to working in *Poser 5*.



On your CD

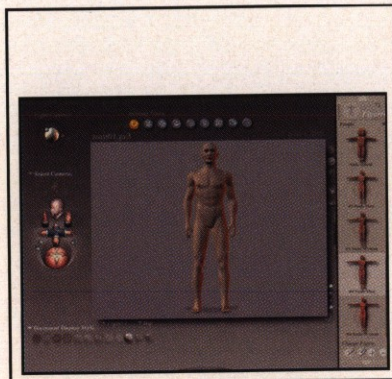
The two JPEGs needed to follow this tutorial are on the CD in the folder Tutorial\3D&effects\Poser – look for zombiejeans.jpg and zombiebackground.jpg. Expertise dug up and re-animated by George Cairns – contact him on [e] george@georgecairns.com or via [w] www.georgecairns.com.

Part 1: Getting started

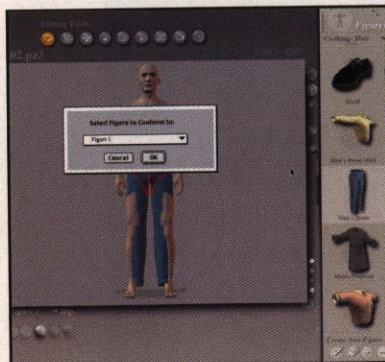
Before things start to get ugly, we'll set up a basic *Poser* figure...

Rapid rendering

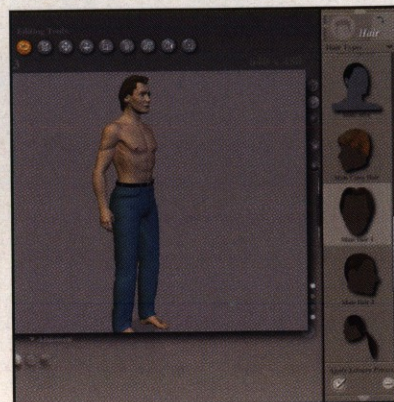
For quicker test renders in *Poser*, go to **Render>Render Options** and turn off **Anti-alias** and **Casts Shadows**. Turn them back on later when you're ready for the final render.



1 Open *Poser*. You'll see the default figure. From the right-hand selection of palettes, choose **Figures**. Use the **Figures** pull-down menu to select **People**. Choose the **P4 Nude Man**. Click the **Change Figure** icon (single tick). A wannabe zombie awaits.



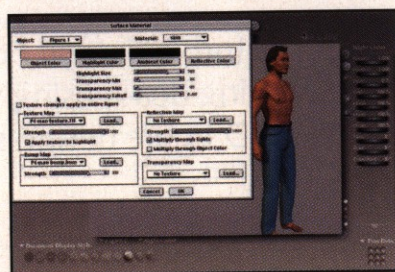
2 To preserve his undead modesty, go to the **Figures** pull-down menu and choose **Clothing** - **Male**. Select **Men's Jeans**. Create **New Figure** (the double tick). From the top menubar, go to **Figure>Conform to>Figure 1**. Now when the man moves so do the jeans.



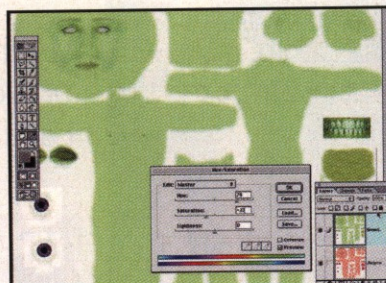
3 Go to **Hair Types** and add **Male Hair 1** to your character. It sticks to his head automatically, so there is no need to make it conform to **Figure 1**. The model is complete and ready for **zombification**.

Part 2: Modifying the default texture map

The model is pretty simple. It's our texturing that will effectively sell the concept of a recently deceased, flesh-eating fiend...



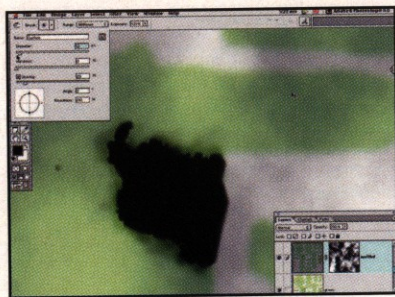
1 Select the man (**Figure 1**) and go to **Render>Materials**. The man has different materials for his various parts. You can assign texture maps to these materials. His skin material contains a texture map called **P4 man texture.tif**. Do a test render (**Render>Render From The Top** Menu) to see what he looks like with the default texture map.



2 Use *Photoshop* to open the default **P4 man texture.tif** (Poser 4\Runtime\Textures\Poser 4 textures). Duplicate the layer by dragging it onto the 'Create a new layer' icon on the **Layers** palette. On the duplicated layer, add a suitably green pallor to the skin using **Image>Adjust>Hue/Saturation**.



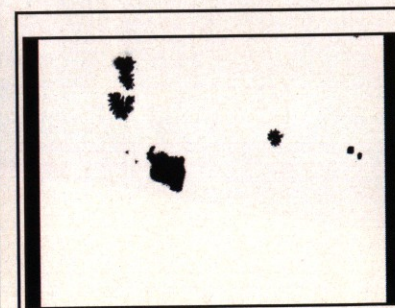
3 To give the skin a mottled appearance, duplicate the green skin layer. Set the **Blending** mode to **Multiply**. Use **Image>Adjust>Hue/Saturation** to make it darker. Click on **Add A Mask**. Apply **Filter>Render>Clouds** to the mask. The darker green layer now has patches in it that show through to the lighter layer below.



4 On a new layer, paint in areas of black where you want holes to appear in your zombie's perished flesh; the chest and face are good places. On the green layers, use the **Burn** tool and brush in darkened areas around the wounds for that ragged, torn flesh look.



5 Create another new layer. Choose a fine air brush, set on about 2 pixels, and spray in some blue veins on the face and arms. Paint in a smaller pupil for the eyes, then paint out some of the teeth. Save the file as **P4 Zombie texture.jpg**.



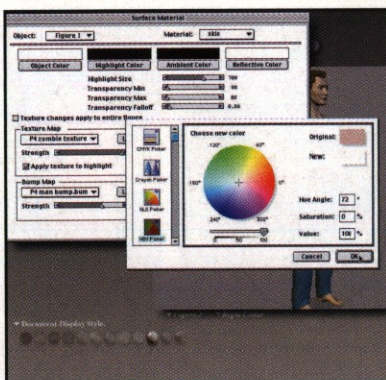
6 Create a new layer and fill it with white. Place it behind the black patches layer but above the green layers so they are hidden. This will be used as a transparency map to poke holes in our *Poser* figure. Save the file as **P4 Zombie Tran.jpg**.

Part 3: Applying the zombified textures

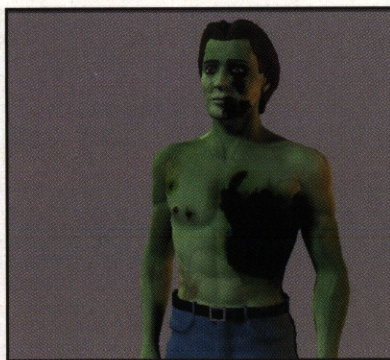
We'll import the modified textures into *Poser* and assign them to our figure's relevant materials...

Seeing the unseeable

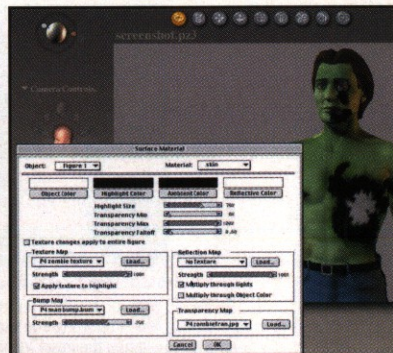
If you've got a lot of transparency settings in your scene it can be hard to see a preview of your Figure's components. Set the Document Display Style on the bottom-left of the interface to Smooth Lined.



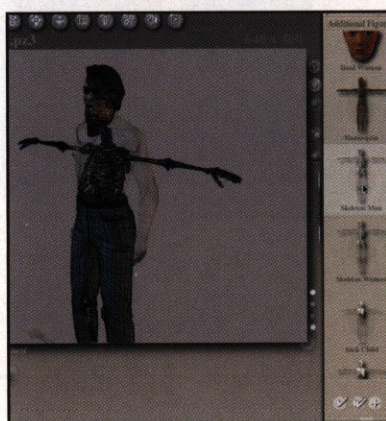
1 In *Poser*, go to *Render>Materials* to open the Surface Material dialog box. Set the Object to Figure 1 and the Material to skin. Go to Texture Map and load in the modified zombie texture. Make the Object Colour white. This will allow your modified map to show through more clearly.



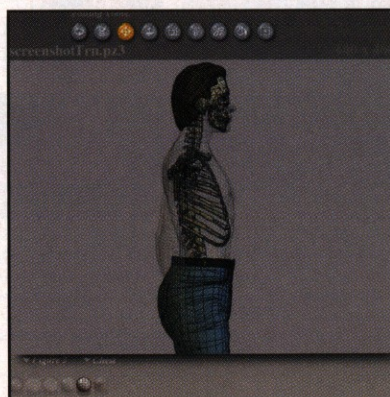
2 Add the zombie texture map to Figure 1's other materials (lips, nipples and so on). Don't forget to make the Object Colour for each material white. Change the nails' Material Object Colour to black for that fresh, out-of-the-coffin look. Do a test render to make sure the modified texture map fits the figure.



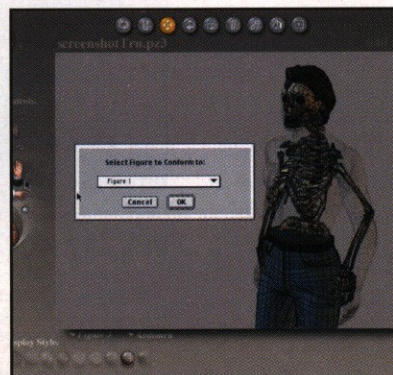
3 In each of Figure 1's Materials, go to the Transparency Map section and load in the transparency map. Set the Transparency Max section to 100 per cent. Make sure you apply the map to all the materials for Figure 1. Do a test render and you can now see through areas of the walking corpse.



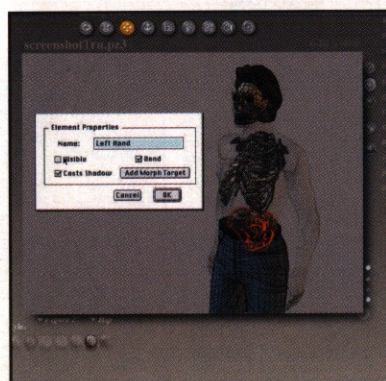
4 Add a skeleton to your undead mix from the *Figures>Additional Figures* palette (Click the Create New Figure icon). Follow the next step to fine-tune the skeleton so it fits inside your zombie.



5 Use the Editing tools at the top of the main window to translate and scale the entire skeleton, to make sure that it is the right size for the figure. Use the From Front and From Left cameras to help you align it.



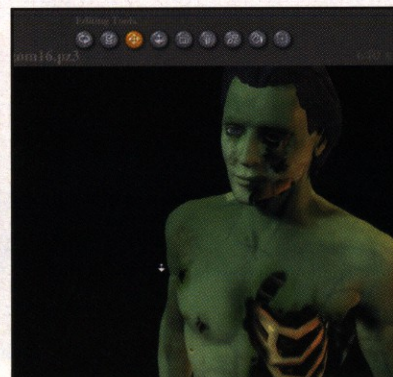
6 Make the skeleton (Figure 2) conform to the man (Figure 1) – it will crouch down. Use the slider on the right to translate the skeleton's hip up in the Y axis. The head will bow, so use the neck's Bend slider to raise it up. Y scale the neck a little to get the skull in the right position.



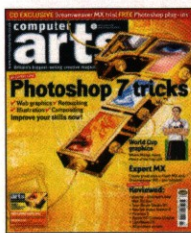
7 We're only interested in seeing the skull and the ribs. Use the *Object>Properties* Menu to make the skeleton's other bones invisible. This will stop unwanted bones poking through the skin. Use the *Object Properties* to make the right eye invisible too, as if it has popped out...



8 For a more effective denim texture, we scanned in a pair of real jeans (the result is on your CD – zombiejean.jpg). Apply the texture to the Jean material's texture map (Figure 3). Create a transparency map for your zombie's jeans to get that fashionably unwashed look that's always in vogue in zombie films.



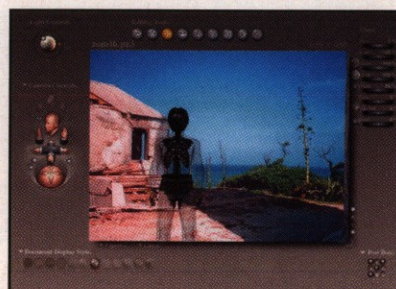
9 Create a bone-like texture map for the skull and ribs by using the Cloud filter in *Photoshop*. Mix between two shades of yellow. Do a test render. You should now be able to see the ribcage and the skull poking through the holes in the zombie's putrefying flesh.



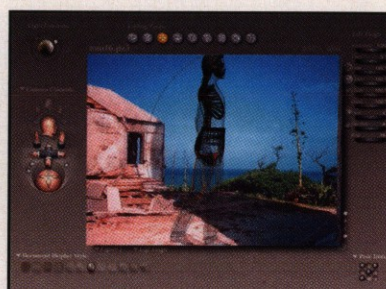
This *Poser* tutorial was originally printed in issue 72 of *Computer Arts*, 2002. Every issue of both *Computer Arts* and *Computer Arts Special* contains tutorials on the latest creative software techniques. Get them delivered every month – turn to page 46.

Part 4: Photographic backgrounds

Now to pose our creature for inclusion in a photographic background. We've gone for the type of Caribbean setting seen in Fulci's *Zombie Flesh Eaters*...



1 Go to File>Import>Background Picture, importing Zombiebackground.jpg from the CD. Change the Poser Window to match the background image's proportions. Use the main camera to zoom the creature into a suitable position in the shot. This is the angle we'll render our zombie from.



2 Before posing, go to Figure>Use Inverse Kinematics and turn off the right and left legs. Now his feet aren't locked to the ground. Use the From Left and From Front cameras when setting up a pose. Make sure you select Figure 1, as the jeans and skeleton are conformed to that.



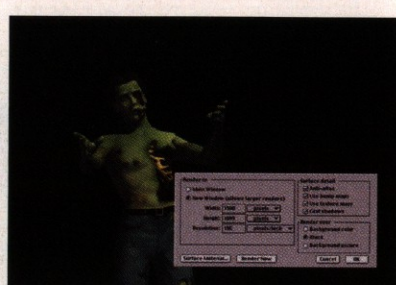
3 Use the sliders on the right to bend and twist the selected body parts into an 'I want to get you' pose. Alternatively, choose one of the Rotate or Translate editing tools from above the main window and click-drag on a body part to move it.



4 Select the Face camera. Select a pre-posed expression from the Faces palette, then adapt it using the sliders. Use the Hand menu to set those decaying digits in a more suitably grasping pose.



5 Position a light to match the sun in the background image. This light will cast harsh shadows, so use another light to fill them in a little. Set it to a lower intensity. Use the Light Properties icon to stop the Fill light casting shadows or we'll get an unnatural double shadow.



6 Go to Render>Render options. Turn on Anti-alias and Casts Shadows. Make the Output size larger. Make sure you render against a black background, as we're going to add the figure to the photograph in Photoshop. Doing things this way gives us far more control with the final composition. Click Render Now.

Part 5: Final composition

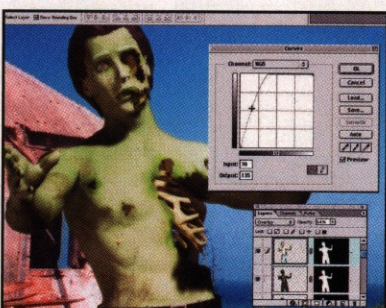
We'll open our rendered zombie in Photoshop and add it to the photographic background. Then we'll add finishing touches that will really sell the image...

Blending 3D with 2D

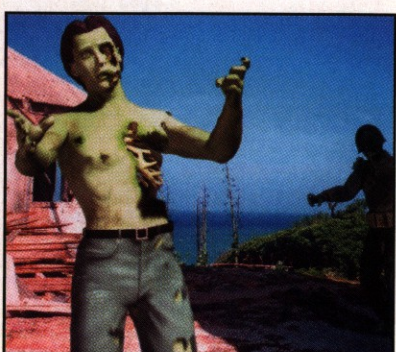
Computer-generated imagery often sticks out like a sore thumb when added to photographic backgrounds. You need to grade the rendered image to make the blacks less harsh. Go to Image>Adjust>Levels and set the output level to around 7. Desaturate the colours a little to make them more realistic (Image>Adjust>Hue/Saturation).



1 In Photoshop's Layers palette, double-click on the zombie thumbnail to make it an editable layer. Go to Channels, then select and copy the alpha channel. Go back to the layer and click the Add a Mask icon. Alt-click on the layer mask to select it. Paste in the copied alpha channel, then click back on the layer.



2 Add the background image. Use the Gaussian blur filter on the layer mask to soften the zombie's edges. Duplicate the layer and use Image>Adjust>Curves to make the whites whiter. Use Gaussian blur on this new layer. Use the Overlay blend mode on an opacity of 64 per cent to make the zombie's highlights glare in the baking sun.



3 Add some grain (Filter>Noise>Add Noise) to make the rendered image match the photographic grain of the background. You can now modify the Poser texture templates to create other zombies for your ghoulish scene.

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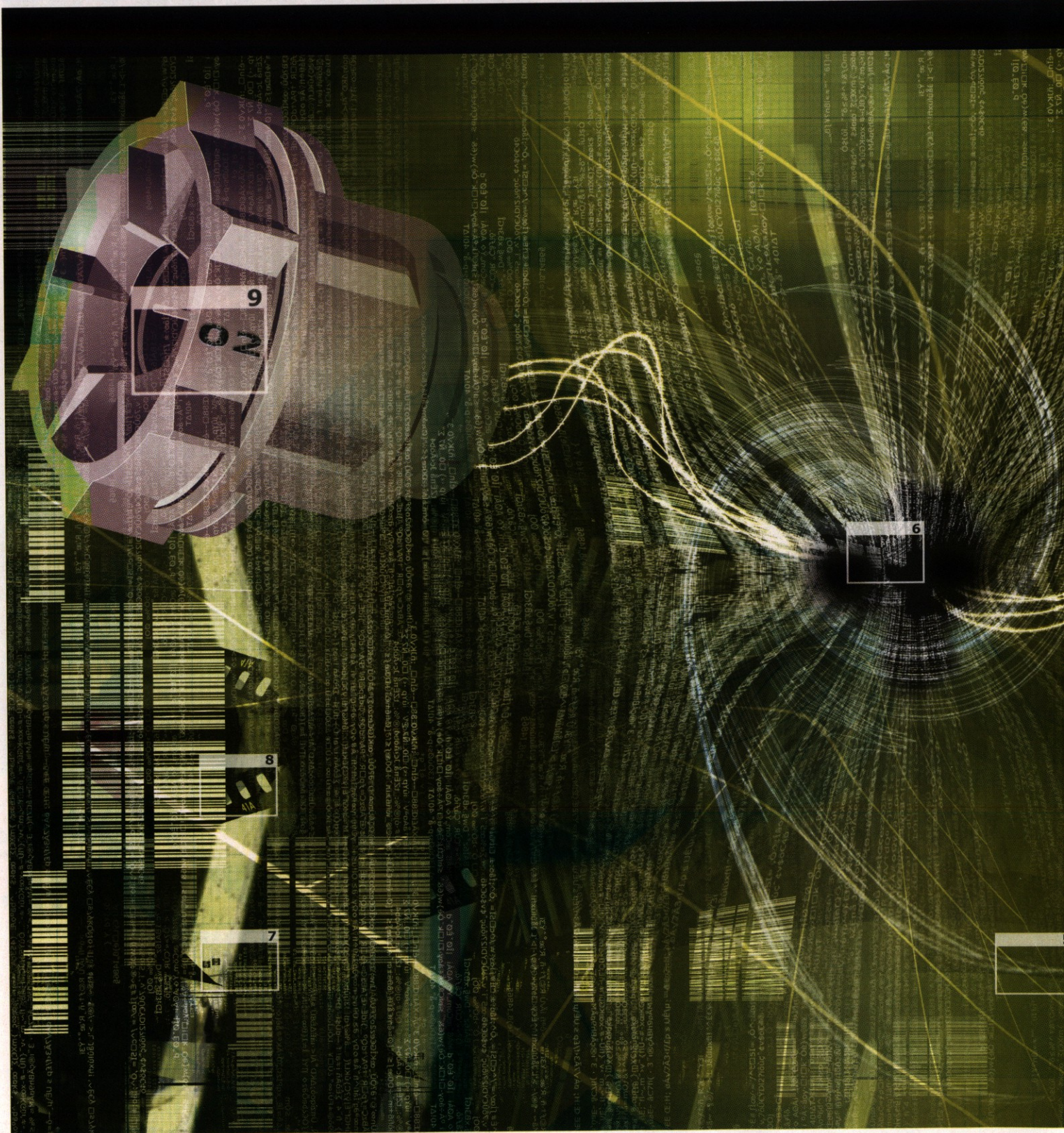
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combustion 2

Learn to use *combustion 2*'s new particle system, text engine and Z-compositing with this expert tutorial...

Version 2 of Discreet's paint, animation and 3D compositing software introduced the powerful G-Masks (Garbage Masks), advanced grain management tools, schematic vision of the work (Schematic View), native support to 16-bit colour channels, LUT (Look-Up Tables for conversion of 10-bit Cineon files), native OpenGL support and much more.

The latest release, in the shape of two new powerful engines — text and particle generation — will certainly enchant many artists.

In this tutorial, we've demonstrated the easy-to-use interface and enormous potential of *combustion 2*. We show you the processes involved in generating video content entirely in this application. The tutorial is divided into three parts, and at the end of each section you are advised to save your project, referred to as a 'workspace'. You can compare your results each time with three projects saved on the coverdisc: *MatrixWheel_phase1*, 2 and 3. You will also find the file *MatrixWheel_phase4* — an extra workspace if you want to continue forward on your own.



CD files

You'll find the files you need on the CD in Tutorial\3D&effects\combustion, including a QuickTime movie showing you our final results. Expertise supplied by Luis Serrasantos, Portugal-based Discreet Certified Instructor, [e] serrasantos@hotmail.com, [t] 00 351 933 287 531.

Part 1: Creating the particles

Set your options and project type, then create a Particles layer...

Displaying time

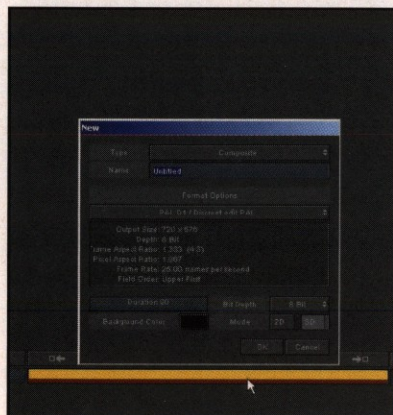
You can choose to work with frames or timecode in *combustion*, simply by changing the options of Display Time in the Preferences. Generally, it's desirable to work with frames in small projects like this one. The timecode display is indispensable in longer projects.

Detach panels

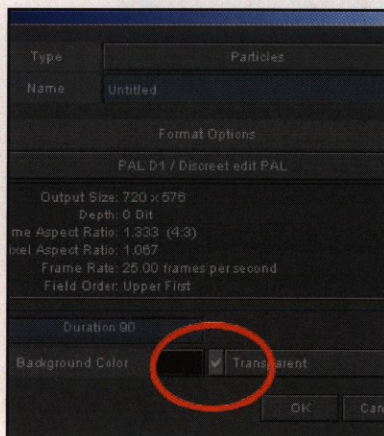
You can detach the Toolbar from the Control panel by dragging it by its name. It's sometimes more comfortable to have the Toolbar outside of the Control panel when you need to use several tools. Another quick way to get the right tool is to use shortcuts.

Useful shortcuts

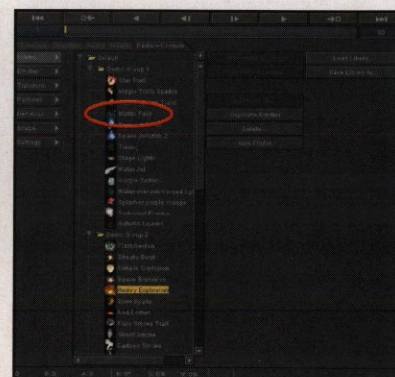
- F1 (Help)
- F2 (Toolbar)
- F3 (Workspace)
- F4 (Timeline)
- F5 (Operators)
- F6 (Audio)
- F7 (Tracker)
- F8 (Composite controls)



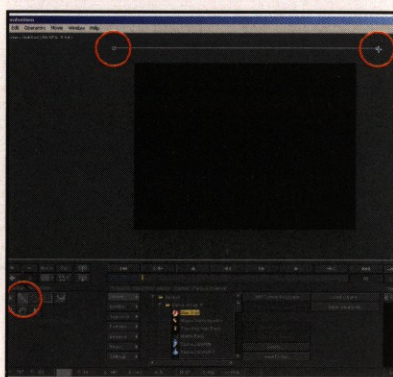
1 Start creating a project in *combustion* 2 (File>New). Choose Composite as the type of project, PAL D1 format (Europe), optional duration of 90 frames, 8-bit depth colour channel and 3D Mode (Z-compositing). You can go back and modify any of these options later.



2 Create a Particles layer via Object>New Layer. A layer of the composite must be active. Choose Particles as the Layer Type and verify that the options of the layer match the ones of your project. In the Background Colour option choose Transparent.



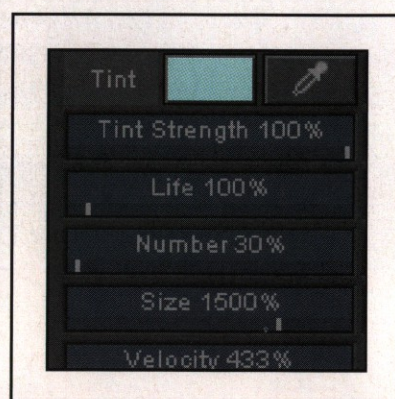
3 You are now viewing the Particles layer in the viewport. Try the shortcut Shift+F11, which expands or contracts the Particles Control panel. Try some of the particles in the library (pick one and drag the mouse in the preview area – the preview must be active). Choose Matrix Falls (group 1). You are using a library particle, but *combustion* also enables you to create your own.



4 Press F2 to open the Particles toolbar and choose a Line Emitter. Click and drag outside your workspace to create the first point of the Line Emitter. Create the second point in the opposing extremity. Press Shift while you drag the emitter to guarantee an horizontal line. Double-click to finish.



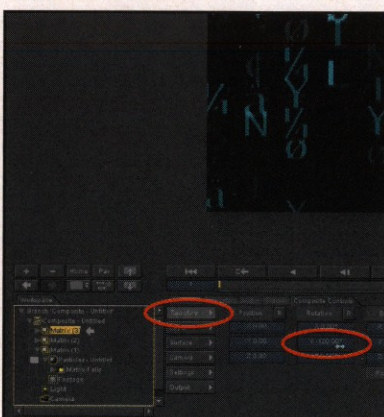
5 Now we'll customise the emitter you just created – in the Emitter Control panel, choose the following options: Life:100 per cent; Number: 30 per cent; Size: 1500 per cent; At Points: 10 (the number of emissions along the line); and Preload Frames: 100 (this means that the emission of particles starts 100 frames before, enabling you to see the particles in frame 1).



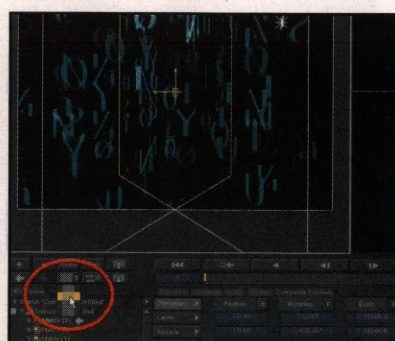
6 In Tint, choose a colour (we suggest R:0, G:100, B:100) and set Tint Strength to 100 per cent to intensify the colour. In the Workspace panel (use the shortcut F3), double-click in the composite to view the composition.



7 In the workspace, name the Particles layer 'Matrix'. Copy that layer twice (in the workspace: Ctrl/Command+C and Ctrl/Command+V). You now have three equal layers: Matrix 1, Matrix 2 and Matrix 3.



8 Select the Matrix 2 layer in the Workspace panel. In the Transform Control panel, rotate that layer in Y: +120°. Rotate the Matrix 3 layer with a negative value of Y: -120°.



9 Pass to two Viewports. Choose Composite mode in both, by double-clicking on the composite in the workspace. Choose the Top view in the right viewport (right/ctrl-click on the viewport and choose Top). Notice that the three layers form a star, with a difference of 60 degrees between them. Save your workspace and, if you wish, compare it with the MatrixWheel_phase1 in your CD.

Part 2: Creating the text

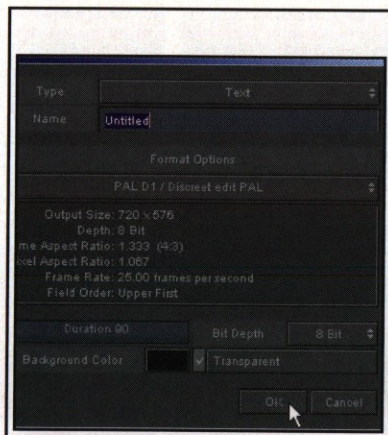
Add a text layer, set up a timecode and animate your text...

Font preview

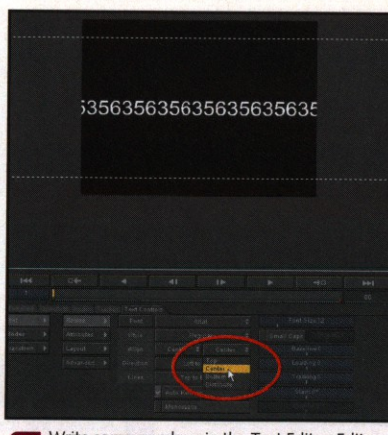
In order to choose a font, you can use the new Font Preview system (click on Font), enabling you to view each font within the viewports in real time (be sure to activate the preview). You can also view a custom word in every font at the same time.

Text Justification vs Text Object

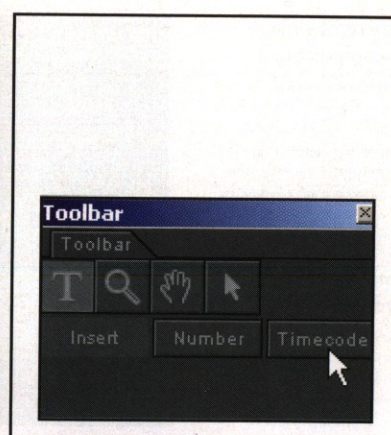
In Text Edition mode, you should distinguish the Text Justification box (when the Text tool is active in the Toolbar) from the Text Editing box as a paint object (when the Object Edit tool is active in the Toolbar). The Text Justification box allows the alignment of text and controls the area of application of an effect. If you enlarge text, align the text to the centre vertically and horizontally and enlarge the box. If the text goes out of the boundaries of the Text Justification box, it will not be seen unless you do this. If you want to edit the text as a paint object, or apply transformations, you should use the Text Object box.



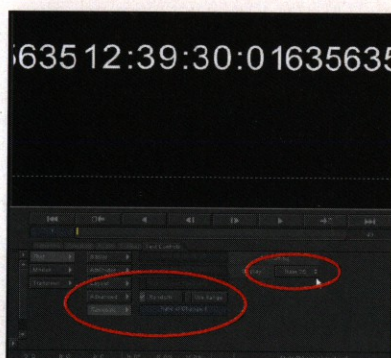
1 Add a Text Layer (Object>New Layer>Text). Be sure to match the settings of the layer to those of your project. In Background Colour, activate Transparency so we can see the underlying layers of particles in the composite.



2 Write some numbers in the Text Editor. Edit the text in the Basics Control panel. Enlarge the Text Justification box (with the Text tool active) by dragging on its control points. Align the text horizontally and vertically at the centre of the box using the Alignment options.



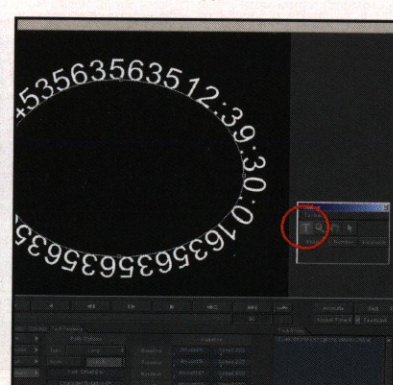
3 Add a timecode to the numbers or text that you've just typed. With the Text tool active, put the text cursor between two of the numbers in the Text Editor. Press Timecode in the Toolbar and the symbol [TC] should appear.



4 Notice that an extra Text Control panel is available: Timecode. Click on it, then choose Random and Base 25 (PAL) in the Formatting options. Now you have a random self-animated timecode inserted in your text. Experiment with using the other options – for example, insert a number instead of a timecode.



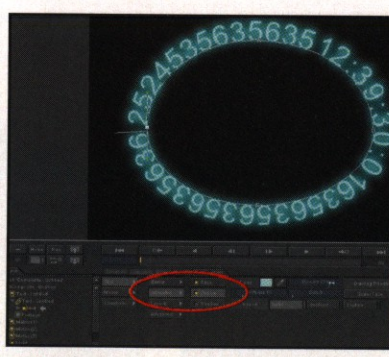
5 One of the new features of *combustion 2* is the capacity to edit and animate text on a path. To make this, choose the option Path or Loop in Path – this is in the Advanced Properties under the Text Control panel. Now choose Loop. After editing the path you can add or delete numbers to complete the full path.



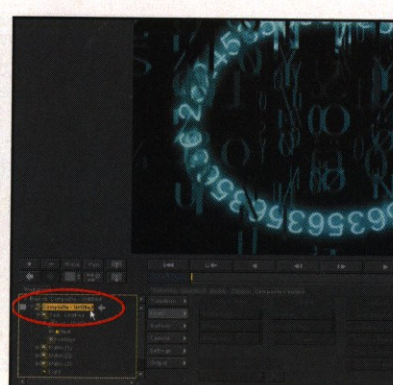
6 To edit the path you must have the Text tool (in the Toolbar) active – just click on a control point and drag. To add points, click over the path. To delete points, select them and press Delete. To edit the tangents, hold down Ctrl and click-drag. Try to give the ellipse a more circular aspect.



7 Animate the text on the path by dragging the Path Offset slider (Text>Advanced). In frame 1, place the text in the desired position. Move to the last frame (use the shortcut 'End'), activate the Animate button and drag the slider of the Path Offset up to 100 per cent. You can verify in real time that the text does a full turn on the path.



8 To finish, give the text a blur without losing clarity in its reading. Activate the Attributes Control panel. Deactivate Animate (because we want a constant effect), then choose R:0 per cent, G:100, B:100 in the Face colour. Turn the Outline on (the light is yellow when it's active) and choose the same colour value. In the remaining fields choose Softness: 18; Opacity: 77 per cent; Size: 6.



9 Switch to Composite mode by double-clicking in the Composite Layer in the workspace panel to view the total composition. The text layer is above the particle layers. Now is a good time to save your workspace, and again you can compare it with MatrixWheel_phase2 on your CD.

Part 3: Compositing

Finally, it's time to animate your Particle layers and look at your results...

The right view in Z-compositing

The Perspective view is fundamental when undertaking Z-compositing. When making changes to the depth, it's good to control what is happening in two viewports: one with a Perspective view and the other with the Normal camera view.

Improve your workflow

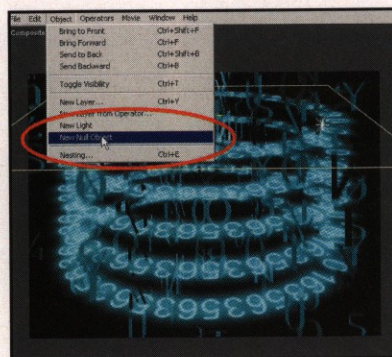
To improve productivity in the workflow, reset the resolution of the workspace to Medium (half of the resolution) or Draft mode (a quarter of the resolution).

Parental relations

With parental relations, all Transform operations applied to the parent will automatically be applied to the child; this is not the case with operations applied to the child, which only affect the child. This simple operation allows a greater flexibility of work. You can easily change parameters later by modifying only one layer.



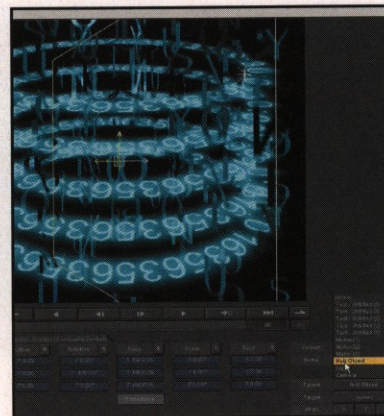
1 Choose two views. Now that both viewports have the same view, right-click on the right viewport and choose Perspective (only available in Composite mode with 3D active). You can now use the Rotate World tool (hit V) to rotate our point of view in relation to the total composition.



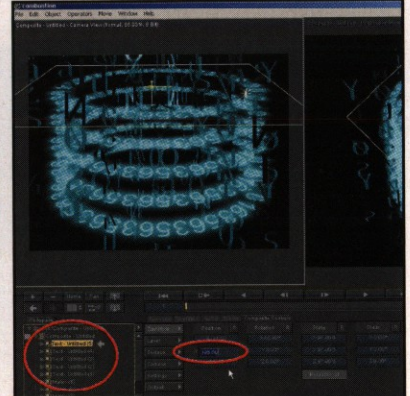
4 To finish, animate together the three Particle layers. The goal is to rotate them a full turn (360 degrees) in the Y axis. Instead of animating each layer, it's easier to create a Null Object (a Help object only visible in the viewport), with a parental relation with the particle layers, and then animate it. Go to Menu Object>New Null Object.



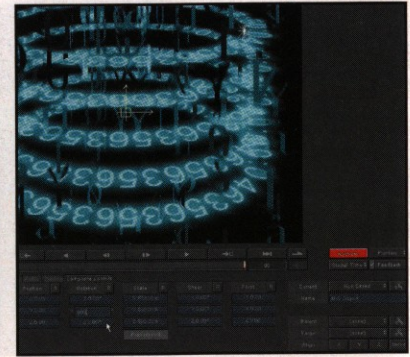
2 Activate the Text Layer and rotate it in X about 60 degrees, manipulating co-ordinate X in rotation in the Transform Control panel of the text layer. In the Perspective view, verify that the text layer passes through the other layers. Centre the Text layer in the composition, manipulating co-ordinate X.



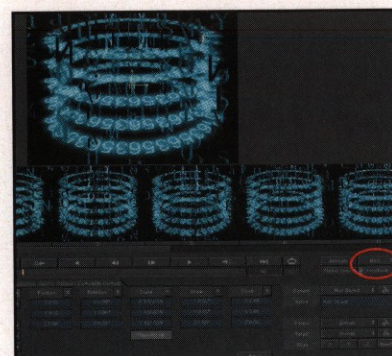
5 Create the parental relation: select a particle layer and choose the Null object as the parent in the lower-right area of the Control panel. Repeat that operation with the remaining two layers.



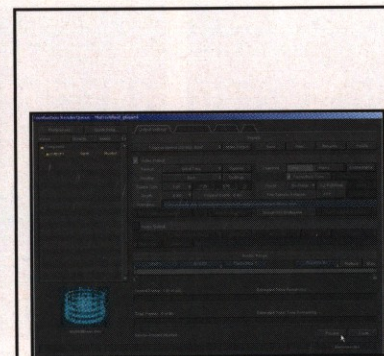
3 In the Workspace panel (hit F3), copy the text layer four times. You'll have five equal text layers overlapping. Distribute them in equal spaces using the Y position co-ordinate. A tip is to double-click in the Input field of Y and use the calculator to quickly perform the offset between them.



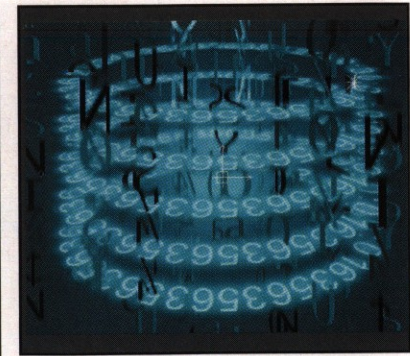
6 To animate the Null Object, select it in the Workspace panel, press End to go to the end of the timeline and activate the Animate button. In the Transform Control Panel, type 360 degrees in Y, Rotation. As the particle layers are the child of the Null object, they will automatically rotate 360 degrees too.



7 The project is now finished. Switch to Best mode, hit Play (or use the spacebar as a shortcut) and wait while *combustion* renders the animation to RAM. Now the circles of text rotate in sync in perspective through the layers of particles with an animated timecode; also rotating as a perpendicular, with letters running downwards.



8 Save your workspace, then compare it with the *MatrixWheel_phase3* on your CD. Go to File>Render to render your project. In the Output options, choose a format such as QuickTime (uncompressed). Choose a resolution and name your movie.



9 An optional step now is to create another particle layer as the background of your project. Create a new particle layer, choose a particle like fog or smoke and give it a blue colour. Once you are happy with the result, send this layer to the back by dragging it on the Workspace panel. Now you have a background.



This tutorial on *combustion* was originally printed in issue 70 of *Computer Arts*, 2002. Every issue of *Computer Arts* and *Computer Arts Special* includes a selection of great creative software tutorials. Never miss an issue when you subscribe on page 46.

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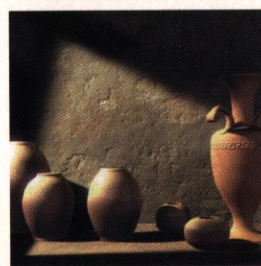
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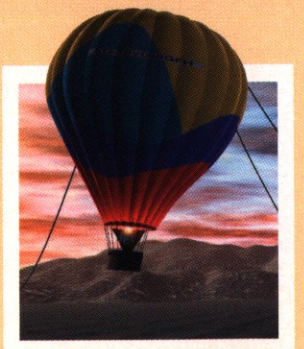
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Illustration

The top illustration tutorials from 2002 will inspire you, advance your technical skills, and provide creative food for thought...

Illustration is the field where the boundary between design and pure, creative art gets seriously blurred. The premise is to both get creative and meet a functional brief, and if you can do both, develop your own personal style, and attract an audience to your work, you'll be laughing. Oh, and being able to push your creative software in the direction where you control the look of your work, rather than the tools in the software itself, helps a lot too. If that sounds like something wildly out of reach, then read on.

In *Computer Arts*, this is exactly what we try and help you achieve when it comes to our coverage of illustration. Here in the *Creative Collection*, we've got tutorials for some of the key illustration applications: *Painter*, with its natural media tools; *Illustrator*, Adobe's vector artwork application; and Macromedia's *FreeHand*. This is your chance to learn some of the techniques used by professional illustrators and apply them to your own work. It's also a chance to see what their creative processes are, and perhaps try and take some of their ideas in new directions.



110 Painter 7

Get to grips with the best natural media toolset going

116 Illustrator: designing for print

Follow a real-world *Illustrator* brief from start to finish

122 Blending and transparency

Create a dynamic illo with *Illustrator*'s advanced tools

126 Composition techniques in FreeHand

Are your images easy on the eye and perfectly weighted?



Illustration: Derek Lea Email: derek@dereklea.com

Painter 7

Paint with oils or use pastels, pencils and chalk: we show you how to simulate traditional media and create our painterly illustration



On the CD

You'll find the files needed to complete this tutorial on the CD in the folder Tutorial\Illustration\Painter (these files are for personal training purposes only, and not to be reproduced elsewhere). Words and artwork by Derek Lea, [e] derek@dereklea.com, [w] www.dereklea.com.

One thing we all know, is that *Photoshop* has the best toolset going for complex colour corrections and generally preparing images for prepress output. But what it doesn't have, is a superb set of natural media tools. Enter *Painter 7*: an app with a natural media toolset that can compete with that of any traditional artist.

Procreate's *Painter* has everything you need to create a natural media feel in your artwork. Whether your traditional medium of choice is painting (watercolour, oil, airbrush or liquid ink), dry media (chalk, oil pastels or charcoal),

pencils or pens, this application will keep you creating, enabling you to produce a high degree of realism in digital work.

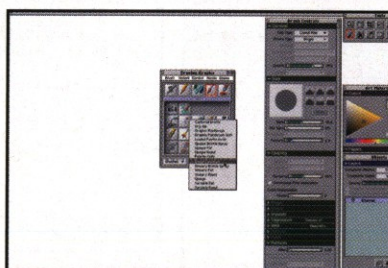
In this tutorial, we'll apply this set of features to generating our illustration. We'll simulate traditional media with both old and new techniques and also take it a step further; for example, in *Painter 7* you can paint with oils and then blend them together with water. Add to this the levels of undo, working with layers and the visibility masks, and you have the kind of flexibility that a traditional artist can only dream of.

Part 1: The background

Starting with a blank canvas, we'll apply the basics of painting to create a background for the illustration, blocking in colours and blending them together...

Using a mouse

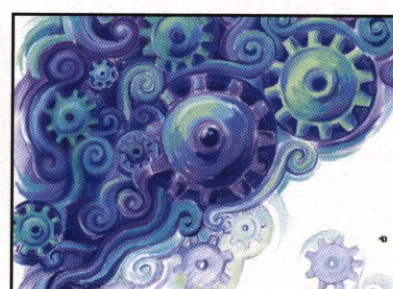
Many *Painter 7* brushes respond to the pressure information provided by a drawing stylus and pressure-sensitive tablet. Technically a mouse does not provide the necessary pressure information. However, you can begin to simulate pressure sensitivity by adjusting the size, opacity, and grain sliders in the Brush Controls palette. Moving the opacity and grain sliders to the right gives the same result as pressing down hard with a stylus. There are also pressure, tilt, bearing and wheel controls available in the Mouse section of the Brush Controls palette.



1 Launch *Painter 7* and create a new file (File>New). Leave the paper colour set on White. In the Brushes palette, select Brushes and start with the Round Camelhair option. It doesn't really matter at this point which type of brush you use, as we're just going to start blocking in areas of colour on the canvas.



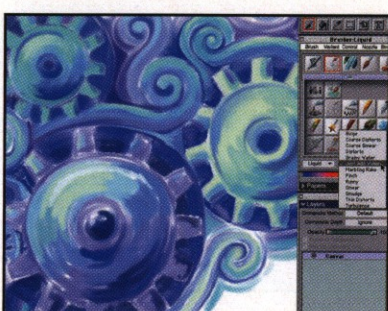
2 Begin painting in some rough strokes to give the feeling of swirls and gears in the background. Don't be afraid to try different types of brushes, and to vary the size and opacity of the brushes in the Brush Controls palette. Select colours using the Colour section of the Art Materials palette. Drag the ring or slider to select a hue and click in the triangle to select a colour.



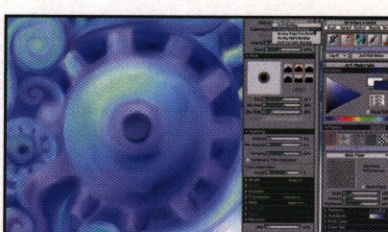
3 Continue on until you have something on your canvas that resembles this. We've left some negative space and lighter areas to accommodate different natural media tools later on. But now that we've blocked in the rough colour, it's time to smooth it out and blend the strokes together.

Floating palettes

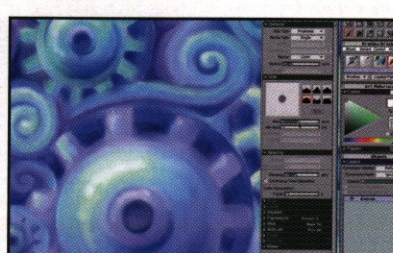
Painter 7 has numerous floating palettes, which have a tendency to consume screen real estate. In an ideal world, you'd have a second monitor to store your palettes on, but if like most of us you only have one, it's a good idea to get used to Command-H, the keyboard shortcut to hide/show the palettes.



4 In the Brushes palette, select the Liquid tool and the Just Add Water function. Begin painting over your existing brush strokes to blend them together. Try using variations in brush size and opacity in the Brush Controls palette.



5 Just Add Water does a wonderful job of smoothing things, but an unfortunate consequence of smoothing is that you will lose some contrast. Using the same brush, change the method to Buildup and the subcategory to Grainy Soft Buildup. Paint over some of the darker areas of the image, and use the Eyedropper tool to pick up colours from the image. This is similar to *Photoshop's* Multiply effect.



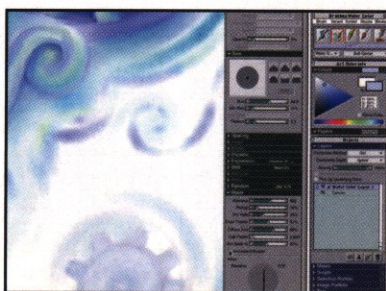
6 Now you need to add in some highlights. Select Brushes in the Brushes palette, and choose the Loaded Palette Knife option. Use the Eyedropper to select light colours from within the image (hold down Option on the Mac or Alt on the PC to access the Eyedropper). Paint in some highlights where you think they belong and experiment with brush size and opacity.

Part 2: Watercolour

Next we'll put *Painter 7's* watercolour features to work – the new watercolour layers are entirely editable and independent of the canvas...

Watercolour layers

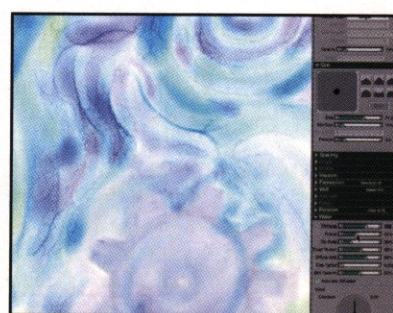
When a Watercolour brush is applied to an image, a new watercolour layer will be created automatically. The exception is when you're already working on a watercolour layer: any further painting will affect this layer, too. To use multiple watercolour layers, ensure you have a non-watercolour layer selected in the Objects palette, so that a new layer is created when you use a Watercolour brush. You can choose the New Watercolour Layer option in the Layers section of the Objects palette.



1 Select Watercolour from the Brushes palette and choose the Soft Camel option. Using various brush sizes and low opacity settings, select some of the colours within the image using the Eyedropper, then begin painting some strokes in the white area to the lower right. Try enabling accurate diffusion in the Brush Controls palette to specify a larger diffusion window.



2 Paint more strokes using the same brush. Try reducing the dry rate in the Brush Controls palette; this will cause the brush stroke to take longer to dry and diffuse widely into the paper. It creates some interesting effects when you paint over existing watercolour strokes.



3 Now paint some more, but this time decrease the Wetness, increase the Dry Rate and greatly increase the Pickup setting in the Brush Controls palette. Decreasing Wetness will reduce the area each stroke will expand to. Increasing the Pickup expands the degree to which the paint strokes mix as one is applied over the other.

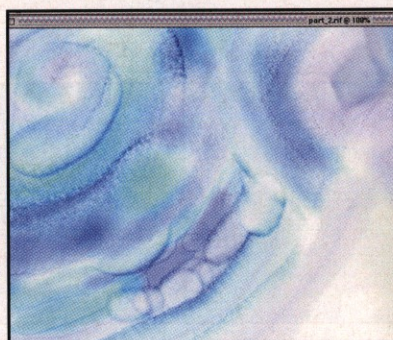
Part 2: Watercolour continued...

Dropping layers

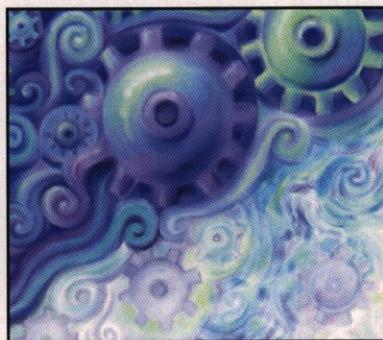
As you build up a number of layers, especially media layers such as watercolours, your machine may become sluggish, and your screen re-draws may take longer when panning or zooming in and out. Dropping layers merges them with the canvas layer and makes things move more quickly. You can access dropping controls in the sub-menu within the Layers section of the Objects palette. This tutorial was created on a Mac G4/733 Quicksilver with 1128MB of RAM, and we still noticed an improvement in performance after dropping some layers.

The Drawer Front

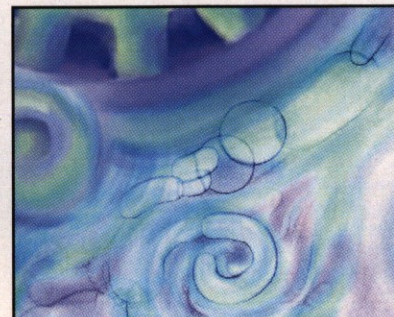
In the Brushes palette, the five brushes on the top reside in the Drawer Front. Every time you choose a brush from the Drawer it will take a place in the front, so you don't have to open the Drawer to find it again. If you're using certain items frequently, you can lock them into place to create your own standard toolset. Click an icon in the Drawer Front and hold it down until a small green light appears, signifying that the item is locked into place. Hold down the icon to unlock it.



4 In the Brushes palette, continue to use Watercolour brushes but change to the Simple Round Wash option. In the Brush Options palette, turn the wind force up to 100 and the direction to 318 degrees. Now, when you paint, the wind will affect the angle, and the force exerted as the water colour diffuses.



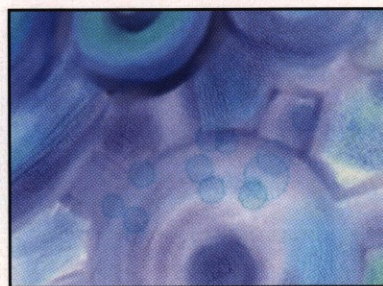
5 Select New Watercolour Layer from the Create New Layer button at the bottom of the Layers section of the Objects palette. Choose the Soft Bristle Watercolour Brush option from the Brushes palette and paint in some watercolour strokes on your new layer. Gently overlay the previous layer using similar colours.



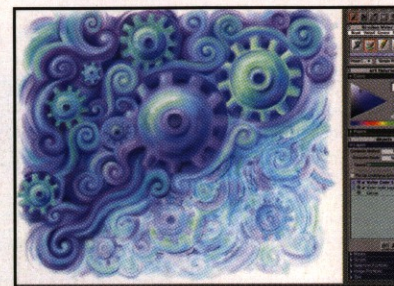
6 Select the bottom watercolour layer in the Layer options of the Objects palette. In the Brushes palette, select Eraser Wet from the Watercolour brushes. Be subtle but erase some of the watercolour paint on this layer. Play around with different sizes and opacities of the Eraser, as well as different settings for the various sliders in the Watercolour section of the Brush Controls palette.



7 On the top watercolour layer, use the Diffuse Grainy Camel watercolour brush. Pick up colours from the image and slowly paint in some strokes to darken the watercolour sections of the image slightly. Also, paint some strokes over the top of the rest of the image, here and there. Try different variations using the Water options in the Brush Controls palette.



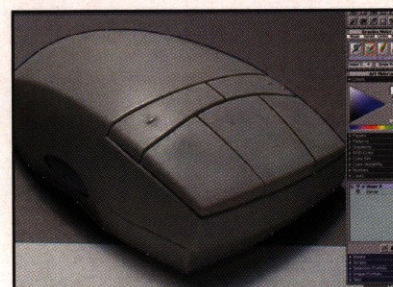
8 Next, on the bottom watercolour layer, use the Splatter Water brush to add some droplets of colour across the image. Try out a few variations in colour, different options in the Water section of the Brush Controls palette and different brush widths and opacities.



9 Choose the Simple Round Wash watercolour brush from the Brushes palette, then pick up mainly blues and purples from the image using the Eyedropper tool. Paint some wide strokes on both watercolour layers and try some variations of brush controls.

Part 3: The mouse and the cord

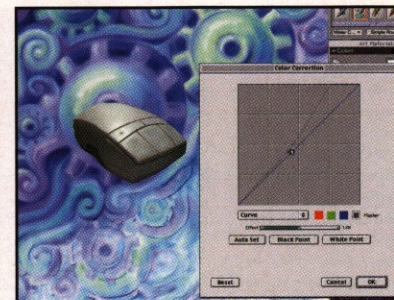
Now it's time to bring in some original photography, draw some paths, create selections, experiment with colour controls and touch up on *Painter's* visibility masks...



1 Open the file Mouse.tif, and use the Pen tool to draw a closed shape around the area of the mouse. You can edit the shape points and segments using the Shape Selection tool; just hold down the Command key. When your shape is closed it will be filled with black by default, but this isn't a problem – you're not using the shape itself, you just want to generate a selection from it.



2 Choose Convert To Selection under the Shapes menu and use the Layer Adjuster tool to drag the area within the active selection into your working file. This will come in as a new layer. Use the same tool to position the mouse layer where you want it within the image.



3 Since the mouse colour looks a little flat, adjust the colour and contrast using Colour Correction: Effects>Tonal Control>Correct Colours. The interface is similar to the Curves options in *Photoshop*, but if you prefer the Levels options in *Photoshop* you may feel more comfortable using Equalize (Effects>Tonal Control>Equalize).

Zooming

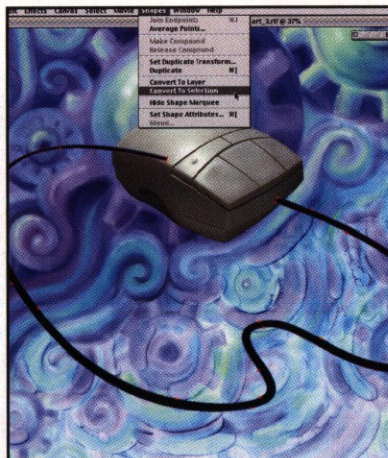
Earlier versions of *Painter* used an integer-based zoom, restricted to a limited set of specific zoom factors. *Painter 7*, however, introduces a fantastic new continuous and variable zoom feature. If you look in the lower left of your window you will see a scale slider and a text box. Moving the scale slider will zoom in or out in a single continuous motion, or you can specify an exact percentage by typing it in the new text box.

Play it safe

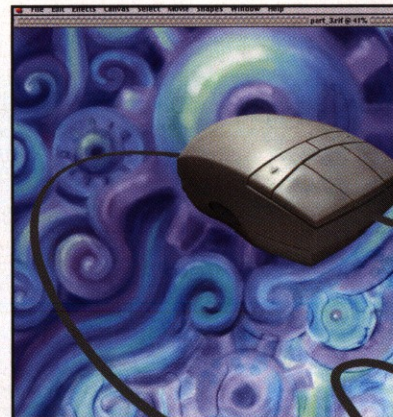
It's a good idea to get into the habit of locking layers when you're ready to move from one to the next. Click the padlock icons in the layers section of the Object palette. Remember, you can always unlock them later if you want to, but locking them can avoid catastrophe. When working in *Painter* it's easy to get palettes overlapping each other, and not notice that you are working on the wrong layer. Imagine your horror if you were to paint a series of brush strokes you didn't like, decide to erase them and discover that you'd painted directly over your background canvas layer; erasing the strokes would erase the background, too.



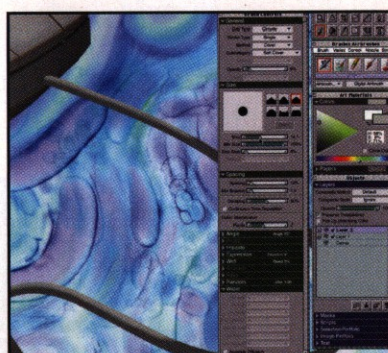
4 Now we'll rotate the mouse into position, using **Effects>Orientation>Rotate**. You can either enter a number in the field or grab one of the handles of the bounding box and rotate it into position. The numbers in the dialog box will change in accordance with your manual movements.



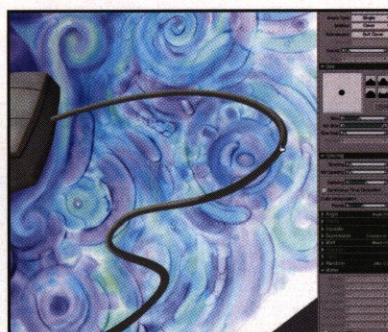
5 Use the Pen tool to draw a closed shape in the shape of a mouse cord. You want the mouse cord to be positioned in a way that makes up the shape of a traditional painter's palette. Generate a selection by choosing **Shapes>Convert To Selection**.



6 Create a new layer and use the Paint Bucket on that layer to fill the selection with a colour sampled from the mouse using the Eyedropper. Just click once with the Paint Bucket inside the active selection, then deselect (**Command-D**). Use the Eraser tool, set to Flat Eraser, to remove any parts of the cord which overlap the back of the mouse.



7 In the Layers section of the Objects palette, enable **Preserve Transparency** to constrain your painting to the cord only. Select the Airbrush tool from the Brushes palette using the Digital Airbrush option. Paint in some highlights and shadows on the cord, sampling colours from the mouse using the Eyedropper tool.



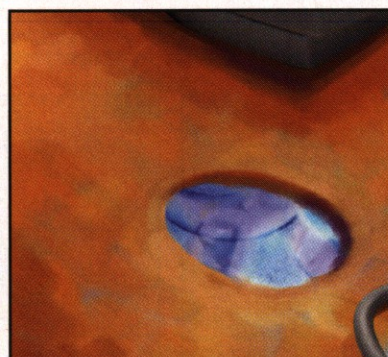
8 Depending on your natural drawing style, some of the angles of the cord may feel unnatural to draw on. If so, select the **Rotate Page** tool from the Grabber tool pop-up. Click and drag on the canvas to rotate it and once you've got it at an angle that feels natural, go ahead and continue painting. A single click from the **Rotate Page** tool on a rotated canvas will return it to normal.



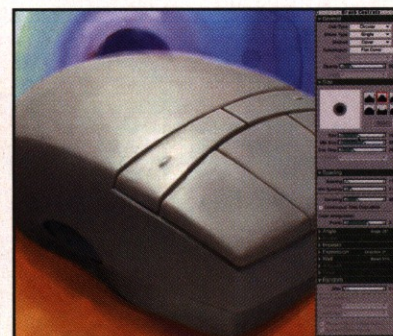
9 Create a new layer and position it under the mouse and cable layers in the Layers section of the Objects palette. Select Brushes from the Brushes palette and choose the **Variable Flat** option. Use variable brush widths and warm colours to paint in and around the artist's palette. Enable **Pick Up Underlying Colour** in the Layers section of the Objects palette so that the new paint mixes with the underlying layers.



10 Paint some shadows under the cord, then add some touches elsewhere. In the Masks section of the Objects palette, select the visibility mask for the current layer. Click the eye icon to make it visible. By default, the visibility mask matches the layer's content. Notice that there is some roughness inside the hole in the artist's palette.



11 Click the Eye icon again to hide the mask, but keep it selected. Choose Brushes from the Brushes palette and select the **Opaque Round** option. Select White in the colours palette, change the brush opacity to 100 per cent and paint over the rough areas inside the hole in the palette. This process is similar to using a layer mask in *Photoshop*.



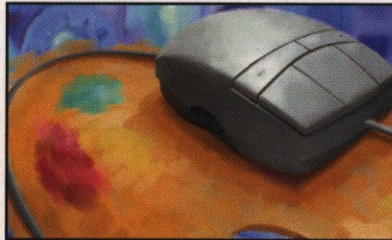
12 The photo of the mouse is looking too photographic in this painted environment, so select the Mouse layer, select **Liquid** from the Brushes palette and use the **Just Add Water** option. Go ahead and use this brush to blend colours on the mouse and give it a more painted look. Now is a good time to experiment with different brush options, such as spacing or damping.

Part 4: Refining the palette

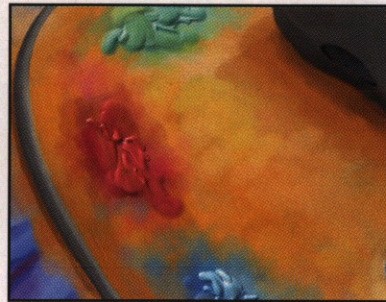
The next step is embellishing the artist's palette by adding three-dimensional blobs of paint, using the Impasto features...

Lighting Impasto

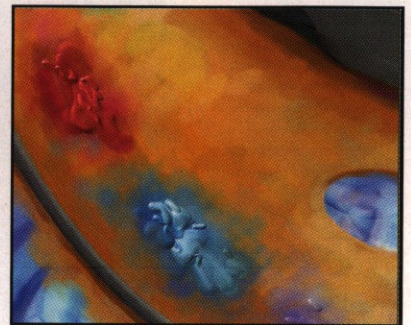
Since the effect of Impasto is one of depth, the most important things to consider are light and shadow. Under Canvas>Surface Lighting you can set up the position and attributes of light sources that shine on your Impasto brush strokes. These lighting controls are global within the image, so any changes you make to them will affect all instances of Impasto brush strokes, whether they are on different layers or not.



1 Create a new layer on top of the others in the Layers section of the Objects palette, and enable Pick Up Underlying Colour. Choose Brushes from the Brush menu and alternate between Opaque Flat and Opaque Round. Use the Eyedropper tool to pick up colours from the image, then paint over parts of the mouse and the cord using short strokes and small dabs of paint. Paint in some coloured areas on the artist's palette.



2 Choose Impasto from the Brushes palette and select the Gloopy option. Begin painting over the areas on the palette where you applied colour, using the Eyedropper tool to sample the appropriate colours. Experiment with the Impasto settings in the Brush Controls palette.



3 Choose the Depth Equalizer and gently brush over some of the Impasto areas you have created. This will help you to equalize areas where you feel there is too much depth. It's particularly useful around the edges of your new paint blobs.

Part 5: Liquid Ink

Watch as congealing masses of ink appear to bind together as they do with traditional media. This new natural media tool is far more versatile than its real-world counterpart...

Liquid Ink Attributes

If you double-click a Liquid Ink layer in the Layers section of the Objects palette, you can access the Liquid Ink Attributes dialog. Here you can control the appearance of depth and adjust the threshold of the edges of ink. Any changes you make to this dialog box will affect the entire contents of the liquid ink layer, including whatever you paint on this layer afterwards.



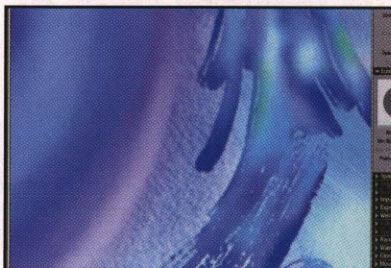
1 Select Liquid Ink in the Brushes palette and choose the Depth Bristle option. Paint some strokes on the background of the image, using various brush sizes and colours sampled from the image. Painter automatically creates a new Liquid Ink layer when you use this tool.



2 Continue painting with Liquid Ink and try experimenting with the Softness slider in the Liquid Ink controls. Smoothness controls the tack of the ink: a low value will result in a coarse stroke that resembles a dry brush stroke; a higher value creates a solid-looking smooth stroke.



3 Now, using the same brush, change the type to Colour Only in the Liquid Ink controls. Paint some strokes of different colours on top of your existing ones. Using Colour Only means new ink will not be applied to areas of the layer that do not already contain ink; it will simply apply colour to areas where the ink exists.



4 Use the same brush again, but this time change the type to Soften Colour Only. Just like the previous brush type, the actual shape of the ink itself remains unaffected – only the colour is affected. Paint over the entire area of ink you have created to softly blend the colours together within the current ink shapes.



5 This time, change the type to Soften Ink Only, and run the brush over the ink area a number of times. This just softens the ink component – the actual size and shape of the ink – and leaves the colour component untouched. This will cause the ink to congeal and bind together.



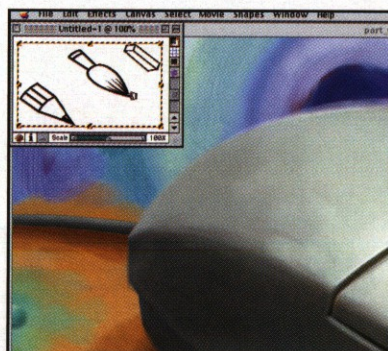
6 Now use the Resist type to repel the ink and add some roughness to the congealed mass of ink. Use some different Liquid Ink brushes and types to add more liquid ink on this layer, overlapping other areas of the background. Have some fun experimenting with the Liquid Ink sliders in the Brush Controls palette.

Part 6: Finishing up

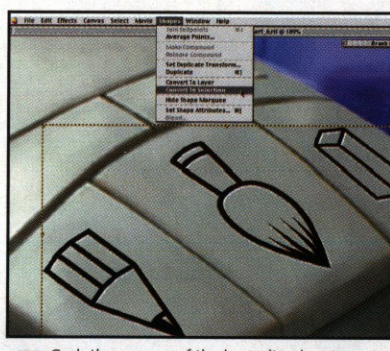
To complete our image, we'll acquire an *Illustrator* file, continue working with familiar techniques and get a taste of what you can do with paper texture and grain settings...

Directional grain shading

Painter 7 now supports directional grain shading. Previous versions did not support this, which meant that when using grain-sensitive materials like chalk, the surface would become covered too quickly. Covering an area completely now requires a back and forth wrist motion, just like it would in the real world. Applying strokes in a single direction will no longer completely cover a surface — users must apply strokes in multiple directions. And for those of you who are wondering... yes, this is a good thing!



1 Open the *Illustrator* file *icons.ai* (on your CD) under *File>Acquire>Adobe Illustrator File*. Use the *Layer Adjuster* tool to grab the *Illustrator* shapes and drag them into your working file. The icons will come into the working file as a group of compound shape layers, and will appear in the upper left-hand corner of your canvas.



2 Grab the corners of the bounding box to resize the shapes so they fit nicely over the three buttons of our mouse. Then, use *Shapes>Convert To Selection* to create a selection from the shapes. With the selection active, create a new layer in the *Layers* section of the *Objects* palette, and move it up in the layer hierarchy so that it's positioned on top of all the others.



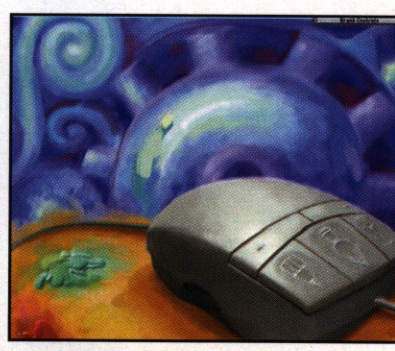
3 Choose *Impasto* from the *Brushes* palette and choose the *Clear Varnish* option. In the *Brush Controls* palette, toggle between *Flat Cover* and *Soft Cover* in the *General* section. Try reducing the brush size and increasing the depth in the *Impasto* section. Paint within the selection to achieve the *Impasto* effect. You can hide the selection marquee by choosing *Select>Hide Marquee*.



4 Invert the selection (*Select>Invert*), then choose *Negative Depth* in the *Impasto* section of the *Brush Controls* palette. Increase the size of your brush and paint inside the raised areas of the icons, as well as just outside of them. This gives the illusion of carving into the canvas and makes the raised areas appear even higher.



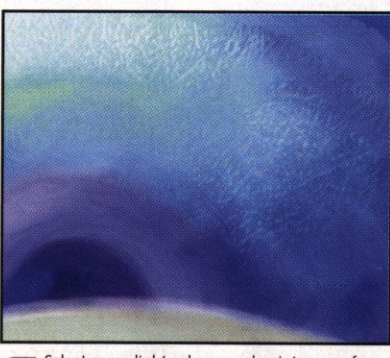
5 On the same layer, using the current inverted selection, choose *Brushes* from the *Brushes* palette and select the *Opaque Bristle Spray* option. Reduce the opacity using *Brush Controls*, pick up a medium grey colour from the mouse using the *Eyedropper* and paint over the areas inside and surrounding the raised icons. Finally, *deselect* (*Command/Ctrl-D*).



6 The artist's palette now has something of an impressionist feel about it, so we'll incorporate some of this into the areas surrounding the palette. Select the layer the palette is on and choose *Brushes* from the *Brushes* palette. Alternating between the *Variable Flat* and *Variable Round* options, paint in some short, quick strokes over the background using the current colours.



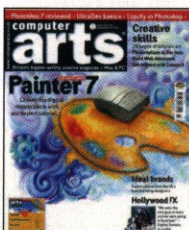
7 Create a new layer on top of all of the others. In the *Papers* section of the *Art Materials* palette, select *Rice Paper*. Increase both the scale and the contrast of the rice paper. Select *Dry Media* from the *Brushes* palette and choose the *Oil Pastel* option. In the *Brush Controls*, reduce the *Grain* setting to a low value.



8 Select some light colours and paint over a few of the highlights, varying the opacity and size of your brush. Setting the *Grain* value so low reduces the amount the paint soaks into the paper, showing more grain and creating a highlight effect. When you're satisfied with the highlight, return to the *Papers* section of the *Objects* palette and click on the *Invert Paper* option.



9 Now select some darker colours and paint in shadows using the same brush. Inverting the paper grain gives the illusion that you are painting within the recessed areas of the paper, creating the impression of shadows. The painting is finished. Should you feel that the image needs further embellishing, just carry on with the same process.



This *Painter* tutorial was originally printed in issue 68 of *Computer Arts*, 2002. Keep your illustrative skills up-to-speed by subscribing to *Computer Arts* and *Computer Arts Special* on page 46.





Illustrator: designing for print

We guide you through the creation and production of a real-world commissioned illustration brief from start to finish

The artist's brief here was to create a cover image for *Frontline* – a national physiotherapy magazine.

The issue which the illustration was commissioned for discussed leadership initiatives in the NHS and how physiotherapists are involved.

The client suggested the possibility of using a spaghetti junction and requested that other medical staff such as doctors and nurses be shown in the illustration (these had to be a mix of gender and racial types).

The idea was that the illustration should work as a standalone cover

illustration, but parts of it would also be used throughout the magazine as spot illustrations.

From then on, the job was in the hands of the illustrator, Domanic Li, who is represented by The Organisation Illustration Agency. After creating a pencil rough that was approved by the client, Domanic created the piece using *Illustrator 9's* Transparency and Blending mode features, and its industry-standard toolset. In this tutorial, we guide you through the production of the illustration from start to finish, showing you how the illustration developed from an initial drawing to the final artwork. ►



Expertise provided by Domanic Li, who is represented by The Organisation Illustration Agency
[t] 020 7833 8268



CD files

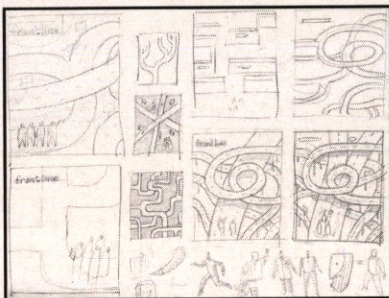
The files that accompany this step-by-step guide are on the CD, in the folder Tutorial\Illustration\Illustrating For Print – you'll find a copy of the rough drawing and a halfway point version of the illustration, as well as a copy of the final file. Please note that this artwork is still protected by copyright laws and has been provided for tutorial use only.

Part 1: Creating a rough and setting up the document

The first stage is to draw up a rough for client approval. This enables the client to get an impression of the final illustration and allows any problems to be cleared before the artwork is started...

The purpose of a rough

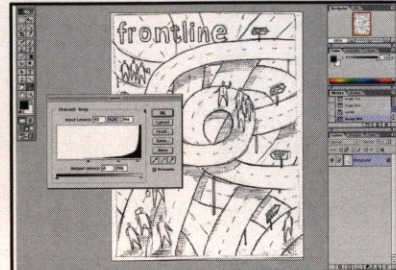
Most illustrators will create some kind of rough or mock up of how they envision their artwork will look before starting on the artwork. be it simple pencil sketches or more detailed coloured drawings. The rough helps the client understand the illustrator's vision and enables the client to request any changes in content, composition, colour and so on before the artist starts work on the commissioned piece. The creation of a rough is a creative process in itself and can actually take longer than producing the artwork. Good communication between artist and client is also necessary as a rough is limited in how far it can depict the illustrator's intentions.



1 The first stage is the development and drawing of a rough idea. Here, a number of roughs have been drawn up, one of which we've selected to be developed further. As you can see, the drawings at this stage are just quick thumbnail sketches to give an impression of the idea involved.



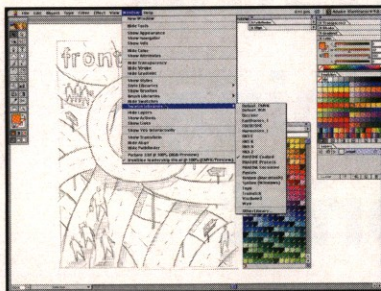
2 Here the selected idea has been drawn up to a larger scale to show more detail and give the client a clearer idea of the finished piece. The client was familiar with the illustrator's style, so the figures have only been loosely indicated.



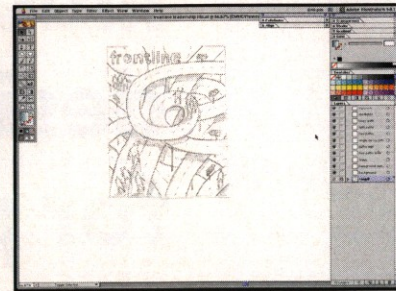
3 At this stage, the drawing is scanned and cleaned up in *Photoshop*, before being saved as a JPEG file which is sent to the client via e-mail for approval. After a telephone discussion with the client in which such things as colour schemes and typographical content were agreed on, the job got the go-ahead.



4 Here the drawing has been opened in *Illustrator* and the layer it's on has been renamed and turned into a template layer (Layers Palette Options>Template). This fades the layer (by default 50 per cent) and locks it, enabling you to use the drawing as a tracing template which is also visible in Artwork mode (Ctrl/Command+Y).



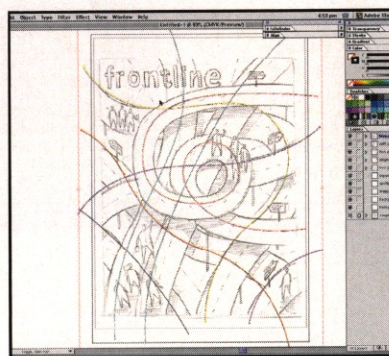
5 Make sure that you are working in CMYK colour mode. A swatch of colours is now created. To create your own custom swatch, you can mix up your own colours and then drag them into the Swatches palette. Alternatively you can use Pantone swatch libraries or a whole host of other colour libraries (Window>Swatch libraries).



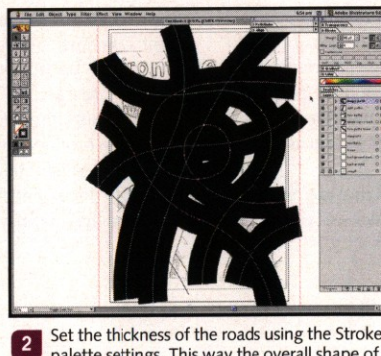
6 Here layers have been created for artwork to be created on and named accordingly. Working in layers enables you to organise your work efficiently and makes editing artwork easier because you can lock or hide layers at will. If you hold the Alt/Option key down as you lock or hide a layer, you will lock or hide every other layer instead.

Part 2: Creating the roads

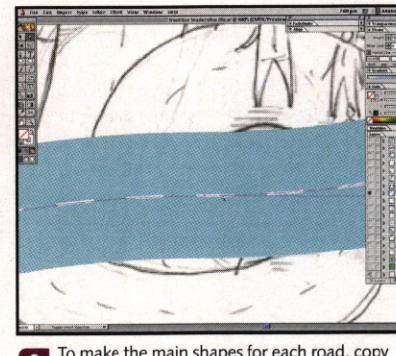
A little forward thinking goes a long way in making the production of the roads much easier...



1 Open *frontline rough.jpg* on the CD. Draw the roads' centre lines on separate layers. Draw the lines using the Pen tool and adjust them using the White Selection tool, but you could also use the Pencil tool in conjunction with the Smooth tool, or the Object>Path>Simplify Command.



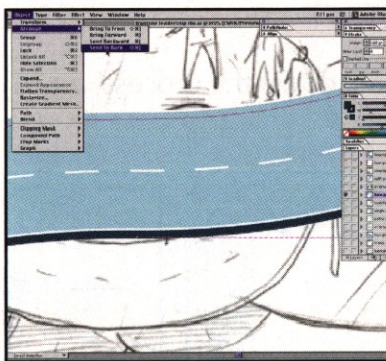
2 Set the thickness of the roads using the Stroke palette settings. This way the overall shape of the roads can easily be altered by adjusting the central path, and the sides of the roads will definitely be parallel to each other. You can change the paths altogether, or if you prefer, make changes to one path, then use the Eyedropper tool on other paths to copy the Stroke settings.



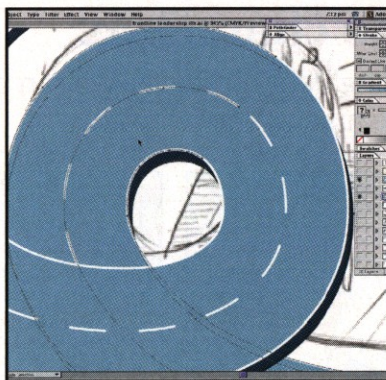
3 To make the main shapes for each road, copy and paste the path in front (Ctrl/Command+F) and adjust the Stroke and Colour settings to create the dotted centre line. To create the outlines, paste in front again and use the Object>Path>Outline Stroke command, then use the colour and stroke settings again to define the outlines.

Trouble with selection?

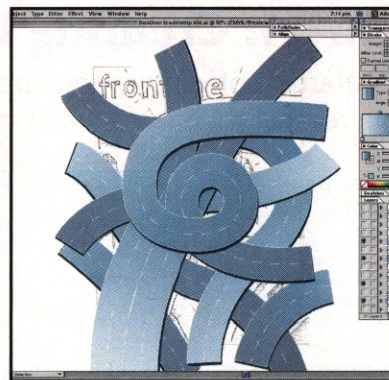
Use the Layers palette to organise your artwork. It is often best to isolate the element you are working on by placing it on its own layer and hiding everything else by Alt/Option-clicking on the Show/Hide area of the layer in the Layers palette. Use Artwork mode (Ctrl/Command+Y) to view your artwork as linework only because strokes and fill settings can obscure other parts of the illustration or make selection tricky. The Lock command (Ctrl/Command+2) is also useful to momentarily lock an object, to select an object directly underneath it on the same layer for example. Don't forget to unlock the shapes afterwards though! (Ctrl/Command+Shift+2)



4 You can make the main path into an editable shape by using the Outline Path command. Copy this shape and paste it behind everything else (Object>Arrange>Send to back). Offset this copy and give it a darker colour to give the road some depth. If you have difficulty in selecting the correct path, you can use the Lock command (Ctrl/Command+2) to lock a path. Use Alt/Option+Ctrl/Command+2 to unlock all.



5 Create the looped road by splitting the original path in two using the Scissors tool and placing the two halves on their own layers. They can then be made up in the same manner as the other roads, except that where the edges of the looping road meet up, the white outline strokes are removed by selecting just the edges with the White Selection tool and hitting the Delete key.



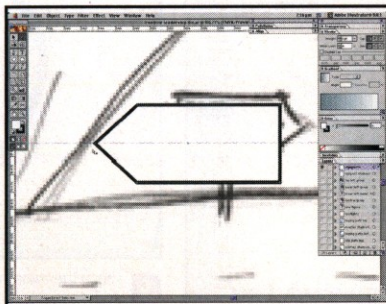
6 Finally make up a gradient by using the Gradients palette. Drag colours from the Swatches or Colour palettes on to the gradient bar of the Gradient palette. Give the roads the Gradient fill and use the Gradient tool to control the gradient direction on each road layer. To make selecting the roads a little easier, select one then use the Edit>Select>Same Style command.

Part 3: Creating the signs

Now we'll create the 3D-looking signs by using the Free Transform tool and basic gradients...

Using the Free Transform tool

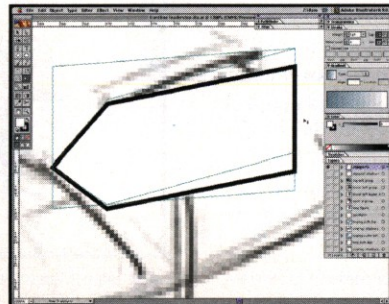
The Free Transform tool can be used to resize objects by pulling on the bounding box handles. Holding Shift while dragging a corner handle will constrain the object being scaled. Clicking and dragging outside the object will rotate it. Holding Ctrl/Command down after dragging a side handle will enable you to shear the object, while holding Ctrl/Command down after dragging a corner handle will enable you to freely distort the shape. Combinations of Shift (to constrain) and Alt/Option will enable you to constrain the distortion as well as distorting two sides at once.



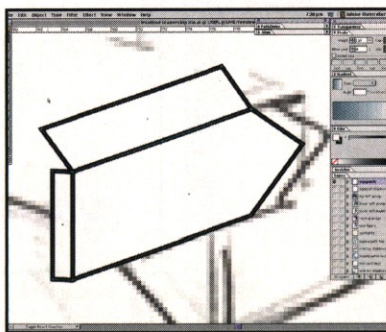
1 We'll draw out the basic shape of the signpost by creating a rectangle. Use a guide to mark the centre, then add a point to one side using the Add Points tool. Now use the White Selection tool to select the point and use the arrow keys to move it. Holding the Shift key down while using the arrow keys will move things by 10 times the keyboard increment setting (found in General Preferences).



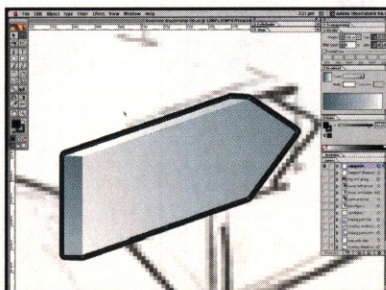
2 This shape is then copied and dragged into position using the drawing as a guide. To copy while dragging, hold the Alt/Option key down first; the cursor changes to a double arrow so you can see what you are about to drag-copy. Remember to let go of the mouse button first, otherwise you will just move your object.



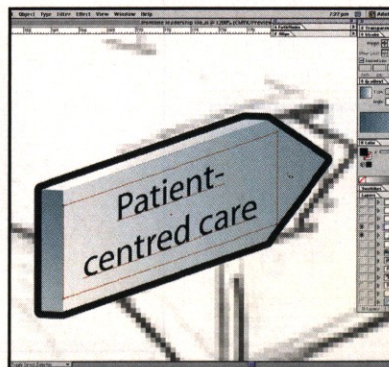
3 Now we'll use the Free Transform tool to shape the individual signs. When you select a shape with the Free Transform tool, you'll see a bounding box with handles around the object which you can use to resize that object, as well as being able to shear or even distort it. If you click on one of the side handles, then hold the Ctrl/Command key down, and you'll find that you can shear the object.



4 To make the signposts look extruded, we'll create some rectangles and adjust one side at a time with the White Selection tool to align with the edges of the signposts. To clean up, use the White Lasso tool to select around points that should be on top of each other and use the Average command (Ctrl/Command+Alt/Option+J).



5 Create a gradient and apply it to each signpost shape. Use the Gradient tool to control the direction of the gradient for each individual shape for each signpost. Finally, create an outline shape for each signpost by copying each set of signposts, then paste them in front using the Merge command in the Pathfinder palette. Give the resulting shape a Stroke setting with no fill to create the outline.



6 Finally, add the text and reshape it to fit each signpost shape by once again using the Free Transform tool on each separate piece of point type. To finish off, group each set of signposts to make repositioning easier. ➤

Part 4: Creating the characters

By starting off simply and applying detail in stages, we can break down the process of creating the figures into more manageable steps...

Simplifying your artwork

Though this illustration is quite stylised, the techniques involved can be adapted to other types of illustration and graphic creation. Try to break down your work into smaller, more manageable tasks. Block in the larger areas first so you can get a sense of how the composition and colour in the piece are working, then start adding detail in stages. Create new artwork on separate layers to ease manipulation and selection. You can select an object and transfer it to other layers by clicking on the colour chip that appears in the Layers palette and dragging it to another layer. Alt/Option-dragging the chip will drag a copy of the selected object to the layer instead. It is often easier to create one object, then adjust copies of that object rather than creating similar objects from scratch.

Lo-tech beginnings

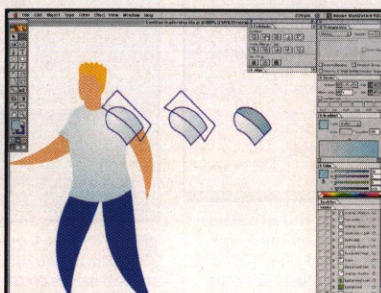
Domanic Li always starts off on paper first, using a humble clutch pencil and layout pad which enables him to quickly formulate and process ideas before committing to any computer work. It may sound like basic advice, but it means that when he does start working on the computer, he can concentrate on just producing the work – rather than having to solve any design problems.



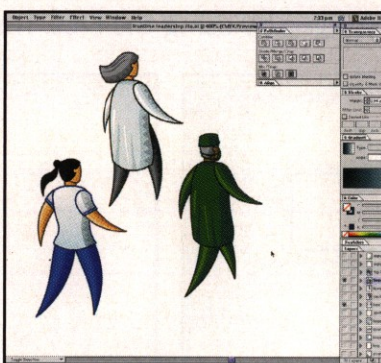
1 We'll start off by blocking in the main shapes of the figures. Use the Pen tool to draw out the main areas of the figures such as the bodies, arms, heads and legs. Give these shapes basic colours so you get a rough idea of how the figures will look.



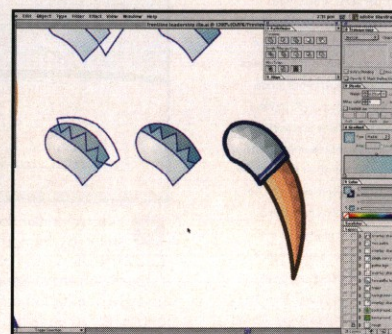
4 Repeat this technique for all the different body parts for the various figures, building up detail as you go along on the faces, hair and so on. Wherever possible, copy parts from one area to another rather than redrawing objects from scratch. This will speed up the process a little, though many areas will have to be done manually.



2 To create the detailing on the figures, the following technique was used. A shape was drawn to define a shadowed area above the original shape. The original shape is then selected, copied and pasted in front. This copy is selected with the shadow shape and the two shapes are intersected using the Pathfinder. You can use the Multiply Transparency settings to make the shape darken the area below it.



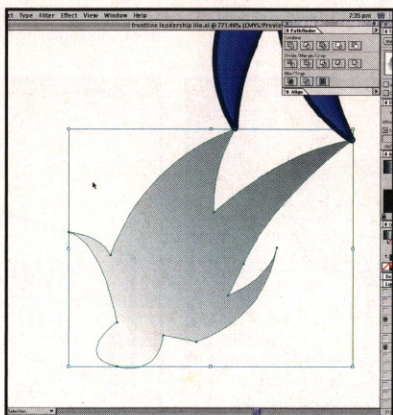
5 Here you can see that just by changing the colours and position of objects you can create new body parts easily and quickly. Taking shortcuts such as these can be really beneficial when you're up against a tight deadline!



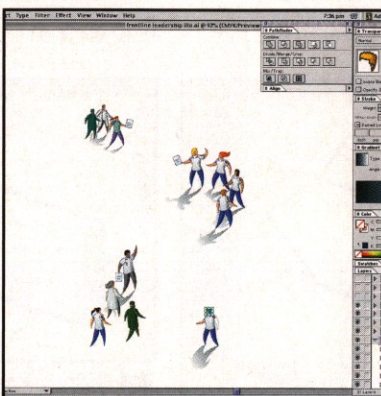
3 Now a new zig-zag shape is drawn out using the Pen tool. This shape overlaps the shadow shape we've just created. We'll use the same technique of copying the shadow shape, pasting in front, then intersecting the copy with the zig-zag shape. Once again, use blending modes to control how this shape darkens the one below it.



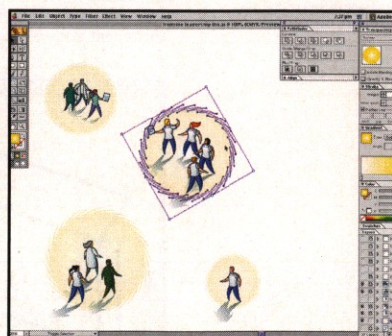
6 Once the main figures are done, you can start adding more details such as hair, collars, watches and so on. In this case, the client requested that the physiotherapist figures had to have a specific badge on their arms. We recreated the badge in *Illustrator* and copied and pasted it into position on the illustration.



7 On a new layer, add shadows to the figures by drawing out shapes with the Pen tool. To achieve the faded look, give the shadows a simple gradient (which you can control with the Gradient tool) and set them to multiply at 50 per cent using the Transparency palette.



8 Each group of figures and their shadows are now placed on their own layers. You can use the Layers palette to organise artwork or even select specific shapes, objects or paths. You can also check or change the hierarchy of the objects using the Layers palette, which shows you sublayers and groups for each layer.



9 Now, on a separate layer, create a spotlight by carefully drawing out a circle shape over a group of figures. Use the Object>Path>Add anchor points a couple of times to add more points to the circles. Next, use the Twirl tool to add some areas of visual interest to the spotlight area before applying a radial gradient. Finally, set the shape to Screen Blending mode at around 15 per cent Opacity, then copy and scale the shape into position over each group of figures.



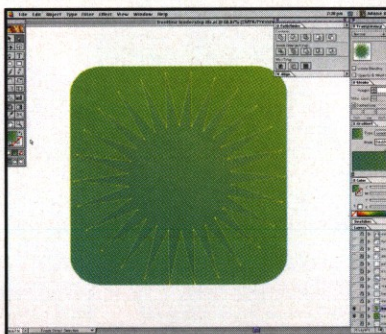
This tutorial on designing for print was originally printed in issue 29 of *Computer Arts Special*, 2002. *Computer Arts* and *Computer Arts Special* are the only way to keep your creative and technical skills up-to-date. Get one or both delivered to your door – turn to page 46 for details.

Part 5: Adding finishing touches

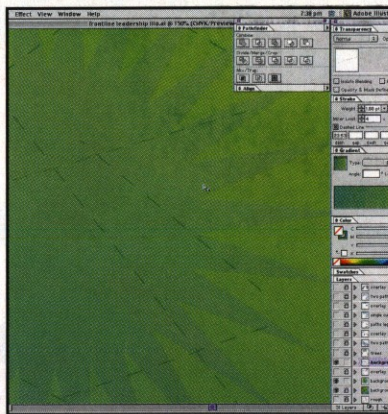
These finishing touches really pull the illustration together, as well as giving a sense of depth and visual finesse to the final piece...

Shape shortcuts

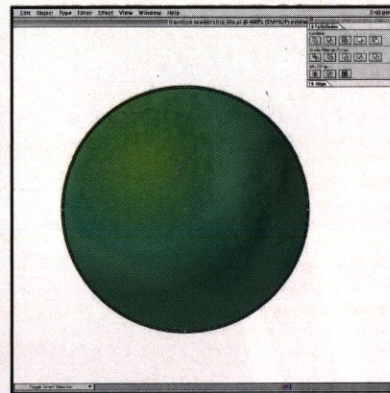
When drawing out geometric shapes in *Illustrator*, try the following different keyboard combinations with the mouse button still held down. To change the number of sides in an object, use the up and down arrow keys. To constrain the shape, hold Shift down. To reposition the object while keeping it active, hold the spacebar down. Certain tools like the Spiral and Star tools enable you to hold down the Ctrl/Command key while drawing them and drag left and right to adjust the amount of spiral or the depth of the star points.



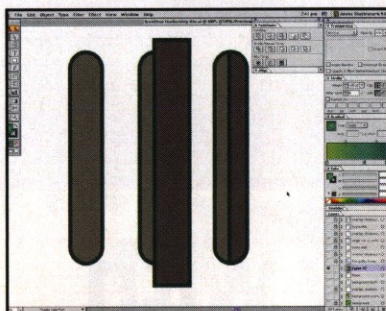
1 Create the background by drawing out a simple shape which we'll give a subtle gradient. Next draw out a star shape inside this shape and adjust the gradient slightly to make the star shape more visible. When drawing out the star shape, press and hold the Ctrl/Command key and drag left and right to adjust how far the spikes come out. To adjust the number of spikes, use the up and down arrow keys on the keyboard.



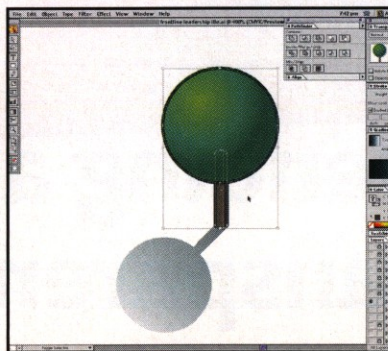
2 Now, using the Pen tool, draw out a set of lines on a layer above the background. Set these lines to dashed lines using the Stroke palette and give them rounded caps to soften the overall look.



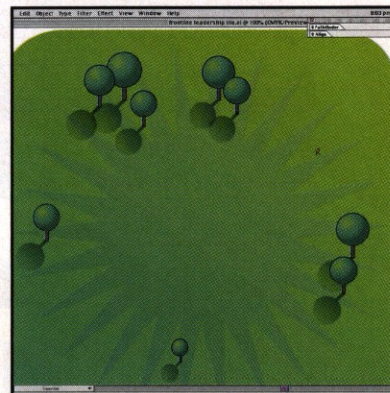
3 Create the trees very simply by drawing out a simple circle shape with an outline on a new layer. Create a gradient and apply it to the circle – you can use the Gradient tool to control it (hold the Shift key to constrain the Gradient tool to 45 degree increments).



4 Create the tree trunks by drawing out a rounded rectangle shape (use the up and down arrow keys to adjust how rounded this shape is while drawing it) and create a shadow shape using the pathfinder technique again – copy the rounded rectangle shape, paste it in front and draw a box above this to overlap the shape. Intersect the box and the rounded rectangle using the Pathfinder palette.



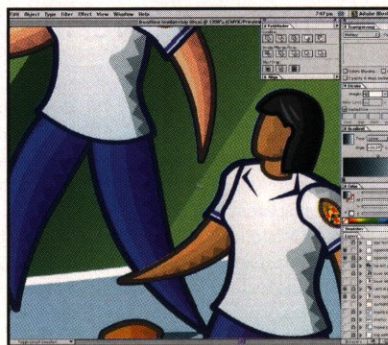
5 Group together these trunk shapes and group them with the tree head. Copy and paste the full tree and paste it back in before combining it into one shape with the Pathfinder. Rotate this shape and move it to create a shadow, then give this a gradient and set it to multiply on a low opacity setting.



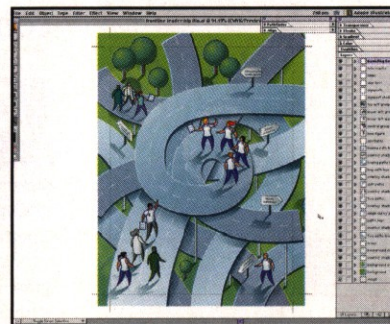
6 Group the tree and the shadow and Alt/Option-drag them into position around the illustration before scaling them up or down to fit with the Black Selection tool (hold the Shift key down to constrain when scaling).



7 Add other shadows to give depth to the scene under the roads, posts and signposts. You can create the majority of the shadows by copying the grouped objects, then pasting them back in and combining them using the Pathfinder palette before rotating or free transforming. Give the shadows a gradient and set them to multiply at a low opacity setting, then place them on their own layers.



8 Add outlines to the groups of figures to add a little more contrast and make them stand out more. Create these by selecting the main body shapes of the figures, then copying and pasting, before combining them with the Pathfinder again, and sending them to the back.



9 Finally, create a bleed and add trim marks to the exact dimensions specified by the client. Because we've created the illustration in layers, the client can easily isolate those elements needed and use sections of the illustration in other parts of the magazine. The final artwork was sent to the client via email as an *Illustrator* file. **CA+**



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Rina Cheung by Arbernaut
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<http://www.pixelsurgeon.com>

Blending and transparency with Illustrator

We show you how to make the best use of *Illustrator's* advanced blending and transparency features to create complex artwork from simple shapes and photographs



Expertise provided by Jason Arber
at Pixelsurgeon [e] jason@pixelsurgeon.com



CD files
The files accompanying this tutorial are in the Tutorial\Illustration\Blending and Transparency folder on the cover CD.

After years of running neck and neck with Adobe, Macromedia appeared to be pulling ahead in the features stakes by endowing *FreeHand* with the ability to create transparent fills. But when Adobe finally responded with version 9 of *Illustrator*, its popular vector graphics software, the features it offered surpassed everyone's expectations.

As well as alpha channel transparency, from version 9 *Illustrator* possessed all the blending modes that *Photoshop* offered, such as Multiply, Screen and Overlay, and offered new ways to apply those effects to objects

and groups. Anyone familiar with *Photoshop's* blending options will feel at home with *AI's* transparency controls.

Illustrator 9 also saw the inclusion of many features aimed at the Web designer, such as pixel previews of vector artwork and a Save for Web command that shared *Photoshop* and *ImageReady's* four-up comparison of different image compression settings.

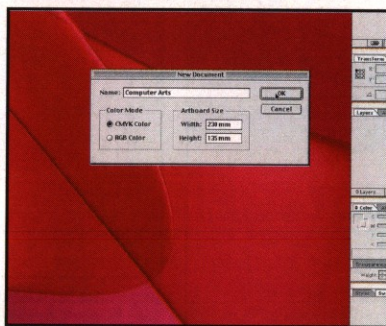
This tutorial was undertaken using *Illustrator 9.01*, but the techniques are also applicable to *Illustrator 10*. Master the program's blending and transparency features to the full, and create exciting, dynamic artwork.

Part 1: Creating the background

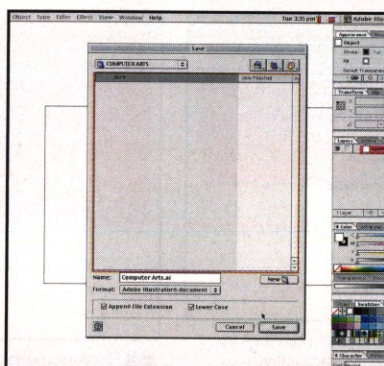
Take advantage of *Illustrator's* cool new features to make a complex background in easy steps...

Pandora's box

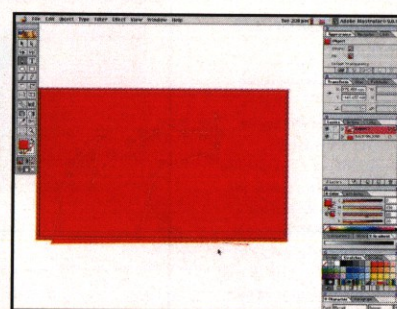
The ability to include transparency in your artwork has proved to be a mixed blessing: designers love it, but repro houses are pulling their hair out. PostScript, the page description language from Adobe, doesn't yet support true transparency and results from EPS files printed to imagesetters can be unpredictable. Until printing technology catches up with *Illustrator*, it's advisable to rasterise artwork in *Photoshop* for mission critical jobs.



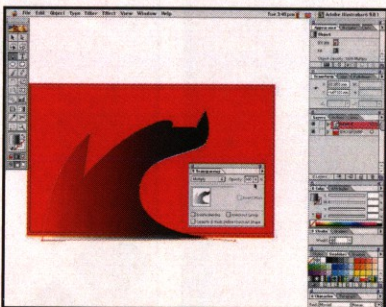
1 Open *Illustrator 9.0.1* or *10* and create a new document (File>New). You'll be faced with a dialog box asking you if you want to create a CMYK document (print) or an RGB document (screen) one. This is to avoid the potential pitfall of mixing CMYK and RGB colours in a single document. You can also select your Artboard size.



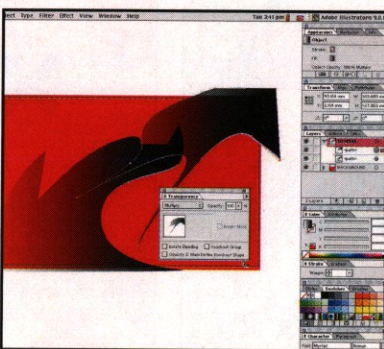
2 Having selected, in this instance, a CMYK document and a final destination size of 230x135mm, the next thing you should do is save the file, giving it a meaningful name and putting it somewhere sensible.



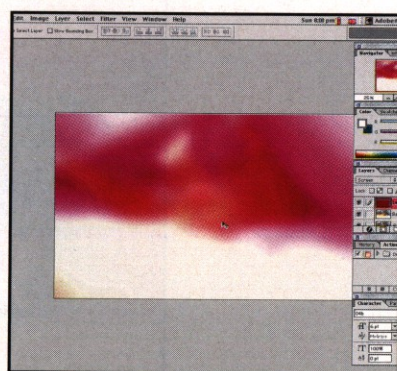
3 The default layer is named Layer 1, but you should get into the habit of naming layers to reflect the content. Create a background layer with an oversize rectangle of colour, and you can start using the Beziér Pen tool to create some random shapes. If you're unfamiliar with how the Pen tool works, this is your chance to experiment – abstraction is the name of the game here.



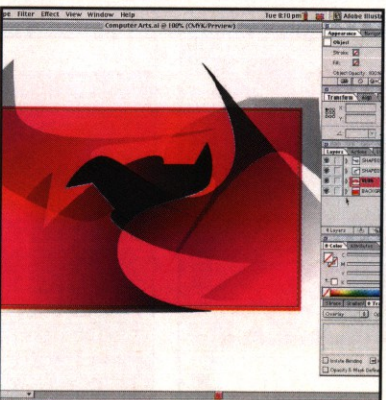
4 So far we could be in any number of vector-based applications such as *FreeHand* or even the latest version of *QuarkXPress*. But having filled the shape with a graduated tone, it's time to experiment with the transparency blending modes. Select your abstract shape with the Selection tool, then choose a blending mode of Multiply from the Transparency palette and you'll find it behaves almost like *Photoshop*.



5 There is one subtle difference, however, between blending modes in *Photoshop* and *Illustrator*. Items on a single layer in *Illustrator* can have unique blending modes. Even if the objects have exactly the same blending values, they are treated as independent items, just as if they were on separate layers in *Photoshop*.



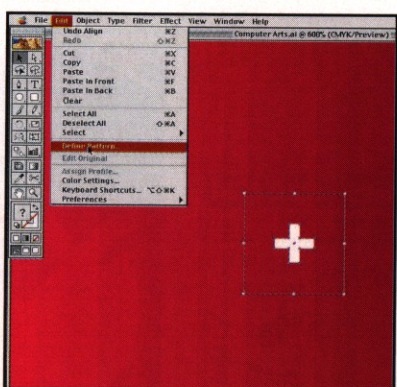
6 Make a quick trip into *Photoshop*, then create a blurred image to give the illustration some depth. Pretty much any image will do because you'll be pumping the Gaussian blur to push it beyond recognition. For those without access to a bitmap editing application, the file blur.psd is on the CD.



7 Paste the image into your *Illustrator* document or use the Place command (File>Place) to import the file onto its own layer. Select a blending mode of Overlay for a subtle effect. You can copy and paste the existing abstract vector shapes to create the beginnings of a more complex image.



8 Using the font of your choice (Buddha's Teeth was used in this case) write Pixelsurgeon, or any other phrase that comes to mind or takes your fancy. Apply a graduated fill and adjust the transparency mode to matte the artwork into the background.

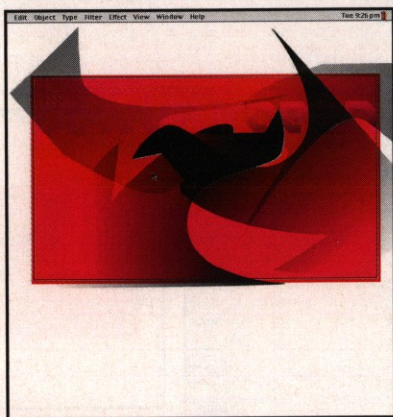


9 Create a white cross by using the Unite Pathfinder tool on two rectangles. You can use this shape (or any other vector image you fancy) as the basis for a repeating pattern. To make a pattern, ensure that the bounding box has been sent to the back, then select Edit>Define Pattern... or drag the shape into the Swatches palette. ➤

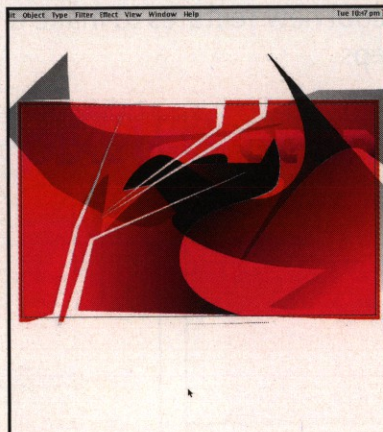
Part 2: Creating the background, continued...

Saving to previous versions

Illustrator gives you the option of saving to previous versions of the application, but beware: *Illustrator* discards any transparency attributes specified in the Transparency palette. The solution is to make sure you select Preserve Appearance in the EPS Format Options dialog box. Always keep a back-up copy of your file in *Illustrator* format, as you may find that any editable type in complex illustrations with lots of transparency effects has been converted to outlines or rasterised.



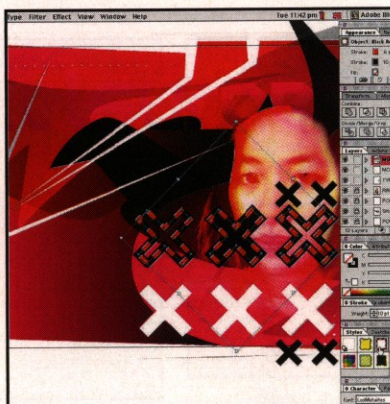
10 After naming the pattern, you can then use it in the same way as *Illustrator*'s native patterns. In this instance, create another abstract shape in the top-left and fill it with your newly created pattern. Experiment with blending modes to achieve an effect you're happy with.



11 Because you're a rebellious sort, you can break up the rigidity of the rectangle with some angular shapes created with the Pen tool and filled with white. This helps create a sense of depth and tension in the illustration.



12 As well as enabling you to experiment with blending modes, *Illustrator* also supports alpha channels on placed images. Create an image in *Photoshop* with large areas of transparency (or use the file *reen2.psd* included on the CD) and place it in your illustration. In a single layer, you can overlay several instances of the same image with different blending modes.



13 Create some more crosses and rotate them by 45 degrees and place them over your image. If you felt inclined, you could experiment with applying different Styles to your shapes. A Style is a named set of appearance attributes which gives you a fast and consistent way to change the look of artwork in documents.



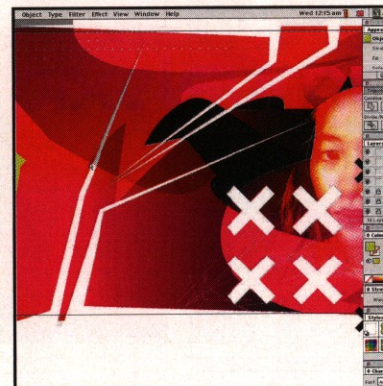
14 Add some tiny type to your image, to give it texture, experimenting with colour and blending modes. If you make the letters too small to comfortably read, this is a great place to insult your peers, rebuke your boss and vent some spleen.



15 Create a clipping path to mask off some of the text by creating a closed path with the Pen tool making sure it is above the object you want to mask. With both items selected, choose Object>Clipping Mask>Make from the menu.



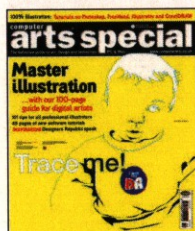
16 Now go crazy with the Pencil tool and scribble over the artwork with a 0.5pt white stroke and no fill. Unless you have a graphics tablet, this tool is difficult to control and in most instances the Pen tool will serve you better. However, for the purposes of this illustration, the unpredictability is ideal.



17 Add a splash of colour to the far-left. Experiment with clashing colours and unusual combinations. You're not painting your living room, so you can afford to be a little adventurous, and you can always change it at a later time.



18 *Illustrator* has supported a variety of European languages for a long time and, if your operating system allows it, the input of double byte languages such as Chinese, Japanese and Korean.



This *Illustrator* tutorial was originally printed in issue 29 of *Computer Arts Special*, 2002. Make sure you are using your creative apps to the full by never missing the innovative tutorials in both *Computer Arts* and *Computer Arts Special* – subscribe on page 46.

Part 3: Creating the foreground

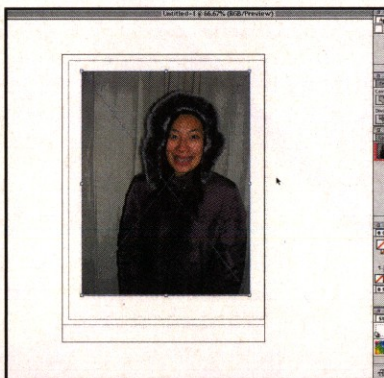
It's time to get friendly with the Pen tool as you build a figure using a photograph placed in *Illustrator*...

Linking and embedding

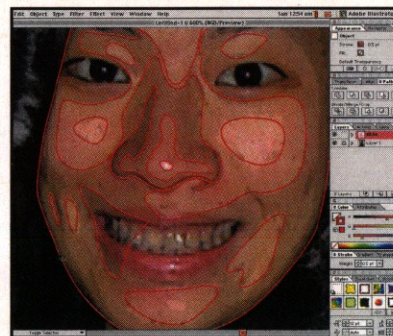
By default, when you place a bitmap image in *Illustrator*, the application references the file rather than embedding it in the document, rather like *QuarkXPress*. This has the advantage of keeping file sizes down, but can cause problems if you move the bitmap file or forget to include it in artwork sent to a printer or repro house. The solution is to ensure that the Include Linked Files option is checked when saving as an EPS or use the Links palette to embed the image.



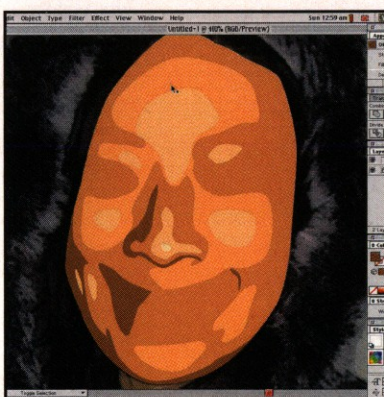
1 Take another quick trip into *Photoshop*, then prepare a photograph by posterising it, or use the Poster Edges filter to reduce the number of tones. For those without access to a bitmap editor, the file rina.psd is provided on the CD.



2 Place the posterized image in a new *Illustrator* document (File>New) so you're free of distractions. Lock the layer and you are ready to manually trace over the image to create a new element to add to your main file.



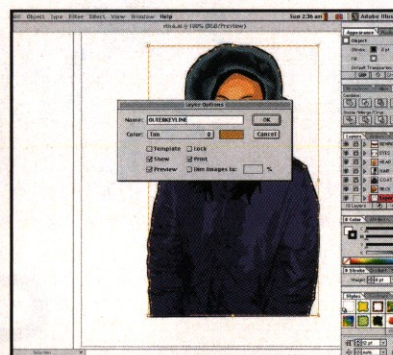
3 Although *Illustrator* includes its own bitmap tracing ability (the Auto Trace Tool), it generates clumsy paths with too many anchor points. Instead, use the Pen tool to define areas of tonal change. When using Bézier paths, try to use as few anchor points as possible: your curves will be smoother and you'll keep the file size down.



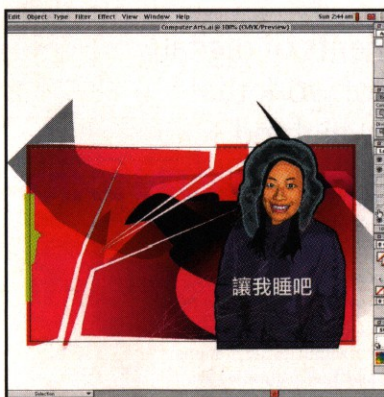
4 Previous versions of *Illustrator* enabled you to sample the colour from placed bitmap images using the Eyedropper tool, but Adobe put a stop to this with version 9, which many see as a step backwards. Instead, choose approximate tones from the Colour palette.



5 Build up the different elements on separate layers. Turning off the visibility on lower layers enables you to see the whole bitmap clearly when working on higher layers.



6 Manually tracing the image can be a time-consuming process, but the results are worth it. Tie the new illustration together by adding a thick keyline as the lowest layer. Create this by copying all the layers containing artwork and pasting onto a new empty layer. Use the Unite tool from the Pathfinder palette to make a single object that you can give an 8pt keyline.



7 Copy and paste into your main illustration file and scale to fit. Because this is a vector image, you can scale it to any size and it will print with sharp outlines.



8 Create a techno speech bubble for the Chinese text, setting the Transparency to Screen. After all, you might have spent hours on that hand tracing and you don't want anything to obscure it.



9 With all the elements now on the artboard, it's time to adjust the positions, even removing elements which aren't working. Change the blend modes, experiment with different layer orders and don't forget to keep saving. Eventually you'll be satisfied with what you see and call it a day.



Composition techniques in FreeHand

One of the most important elements of digital illustration is to produce a piece of work that is easy on the eye and perfectly weighted. We show you how to achieve this...



On the CD

You'll find a demo of *FreeHand* on the CD. Illustration and expertise provided by Identikal Corporation:
[e] info@identikal.com
[w] www.identikal.com

The art of digital illustration is not about the layers you use or even the plug-in effects you can use in your desired program; it's all about intelligence and having reasons for the use and positioning of graphic objects. You must also be aware of colour co-ordination — always restrict yourself to a colour palette of around four or five colours rather than a whole wash of them,

because there's nothing worse than seeing an illustration that looks overcomplicated by too much colour.

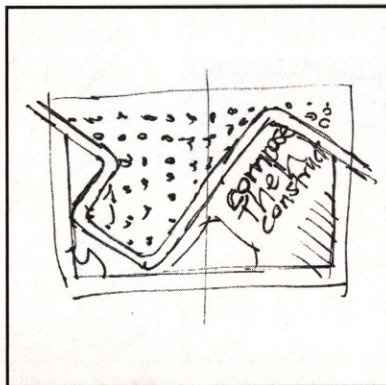
Identikal provided the expertise for this tutorial — a company that produces all the elements within its illustrations, first by hand and then accurately in a vector program like *FreeHand*. Learn how to place objects and maintain colour co-ordination within an illustration, to give it a composition that looks right.

Part 1: Initial composition

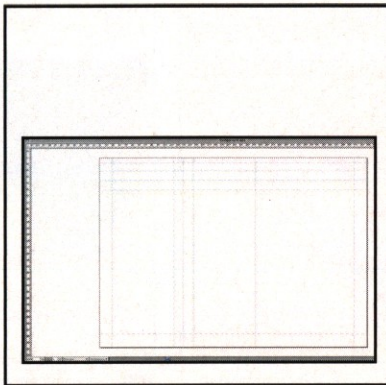
Start things off by sketching your composition and creating a graphic divide...

Natural colour

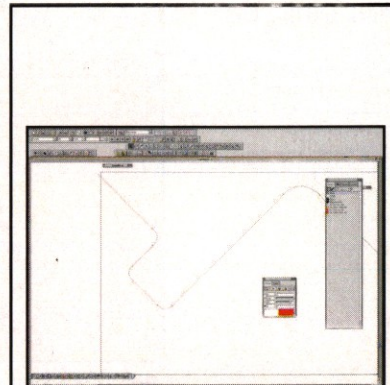
The staff at Identikal often look to nature for inspiration in colour, and a lot of their illustrations have colour palettes based on animal markings or their favourite insects. Pick up a book from your local library and be inspired by mother nature.



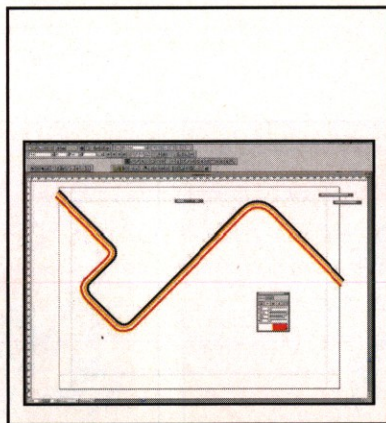
1 Always begin a project by hand-drawing a basic compositional sketch. This will maintain simplicity within your image, and will stop you from going out of focus with your composition, which is the most important structural part of your illustration.



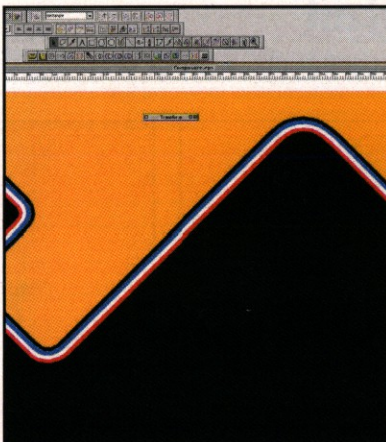
2 Once you have made sure your required page size is correct, you should create a border around it – this will help you to keep graphic objects away from the edge of the illustration. Only coloured plains and shapes that enter the illustration should enter the outer margins.



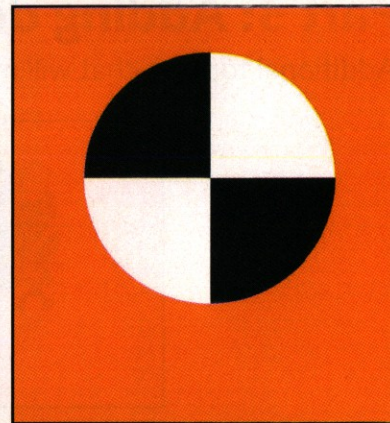
3 The base of your illustration starts with a 'graphic divide', which can be made with a simple line or a large shape. This device is important in your composition, as it gives you a choice of hierarchy and creates a path for the eye to follow.



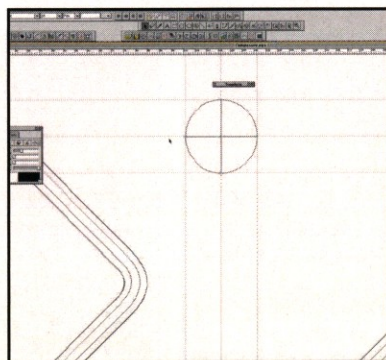
4 To intensify this divide you could add a retro touch to make it more pleasing to view. It also gives your work a 'road' effect, which is great for composition because the eye will naturally follow it across the illustration.



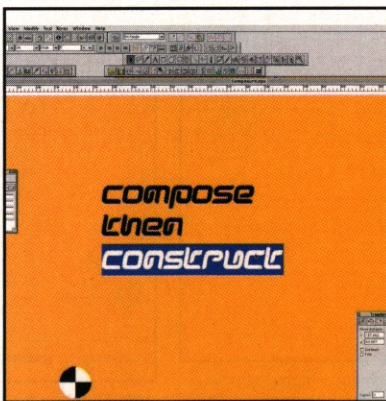
5 Keep this to a minimum of three different hues. Simply shade both halves of the graphic divide with your desired colour (this doesn't have to be the same colour for both sides).



6 The next stage is to decide on the graphic theme of the illustration, because this will provide you with ideas for graphic shapes and icons which you can work with. Our overall chosen theme is a 'crash test dummy course' in illustration.



7 There are many things you can do with such an interesting theme. We drew up a crash dummy symbol and some warning symbols. Graphic objects provide detail to the composition of the illustration, and can enhance the overall visual effect.



8 Type is a major part of any illustration we do. Not only does it give reference to what the illustration is about, it also provides a strong focal point which will add hierarchy to the final image.



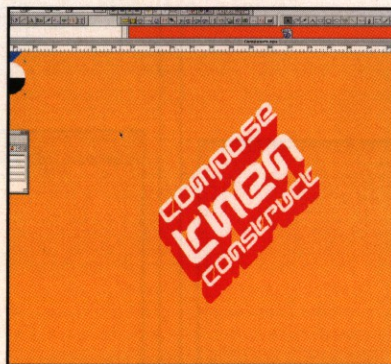
9 Identikal always uses its own typefaces in illustrations, and here the Sharp typeface has been used. It is important to make sure that the message is readable and actually says something – rather than being just a visual gimmick. >

Part 2: Logotypes

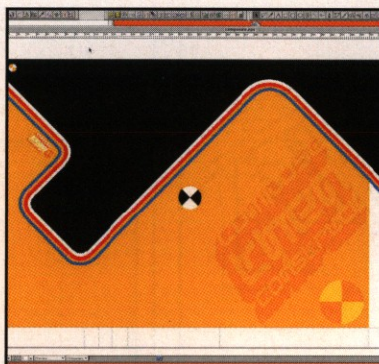
Next, we'll turn type into a logo...

Thick and thin line

Identikal picked up this technique while studying technical illustrations for engineers. Thick and thin lines add extra depth to an illustrated object. It's worth experimenting with thick and thin lines to see which weights have greater optical depth.



1 The next stage with typography is to treat it with some design respect. Don't just type it out and leave it – treat your type message as a logo. Give it composition, and as this will be near the top of the hierarchy it should be instantly recognisable.



2 Once you are pleased with the logotype, experiment with putting it in various places. This is good practice for understanding the structure of your image, and will help out a lot once you get to the latter stages of the piece.



3 It is also good for you to duplicate the logo, and have a secondary, small logo. This gives you added depth and will bring you onto adding detail with other graphic devices. It also shows the typographic construction as a logotype.

Part 3: Adding detail

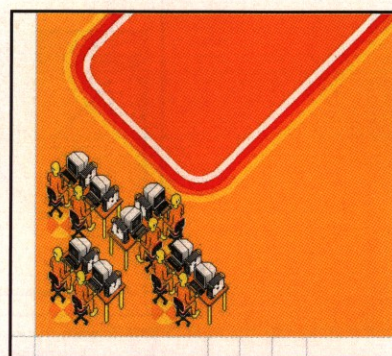
Additional touches that will make the illustration your own...



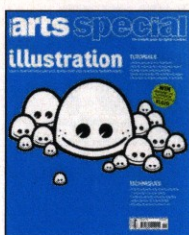
1 For added detail, an illustration that reflects your theme can give the image a more personal touch. We have drawn some characters at a 45-degree angle, with added features like a table and computer. These elements will rubber-stamp your illustration as your own, something that we call 'signature blocks'.



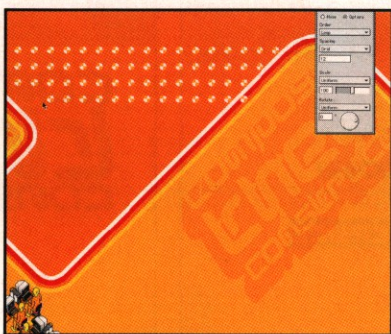
2 Once you're happy with the graphic drawing, the next thing you need to do is choose the right colours that go well with the characters. This is the point when you can begin to select your final colour palette.



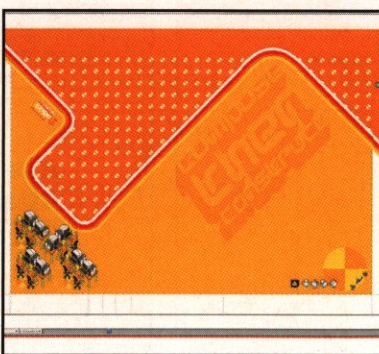
3 When you're satisfied with your colour palette choice, apply all the colours to the main features of the whole illustration. You will now see the image come to life.



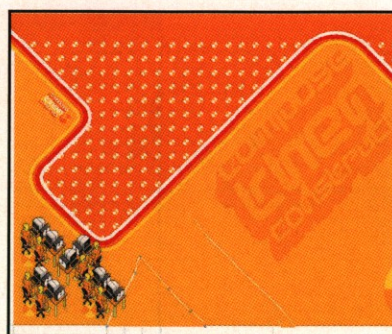
This *FreeHand* tutorial was originally printed in issue 38 of *Computer Arts Special*, 2002 – an issue devoted to illustration software and techniques. You can subscribe to both *Computer Arts* and *Computer Arts Special*, both of which feature regular expert tutorials, on page 46.



4 Create graphic patterning with the logos you designed earlier, in co-ordinated colours. This is easy to do with the Graphic Hose tool. It allows you to paint with any graphic object. All you have to do is add the object to a new Graphic Hose cell and ensure the Hose has been set to Loop on a Grid.



5 Once you have perfected the positioning of the graphic pattern, make sure it's not too overpowering. It is only enhanced detail, and if it's not treated correctly then it can destroy your compositional harmony.



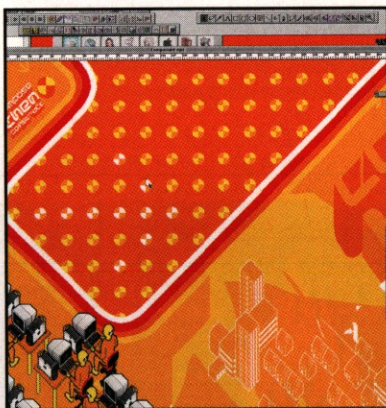
6 Now that the image is 'composed', you can have fun constructing or deconstructing the illustration. Here we have used the Cutting tool in *FreeHand*. By cutting up the coloured areas, you can imitate the effect of decay or creases on a piece of paper.

Doodling

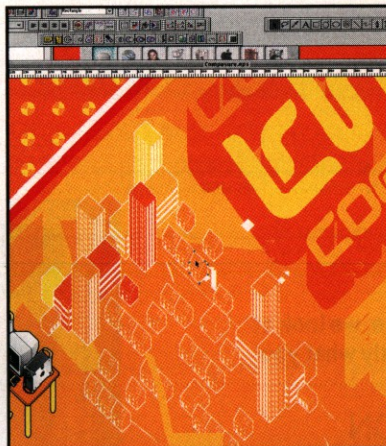
Always keep a pen and paper close to hand at your desk or workspace. Doodling is fun and can be the focus of originality in your illustration work. It is a loose way of inventing shapes and textures, and can inspire you in future work. The sketchpad is the quickest, most inventive source for originality in your work.

Keep it simple

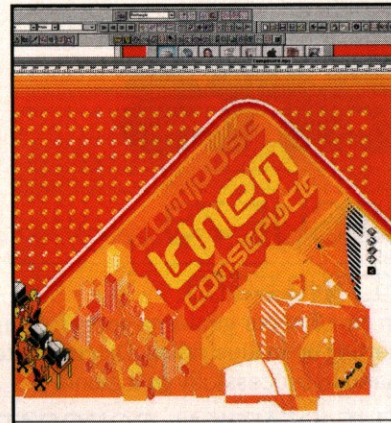
Simplify anything you do, and avoid the next 'trendy' filter or effect in *Photoshop* or *FreeHand*. Remember, illustrators shouldn't be reliant on machines to do the work. Respect your machine, and use it for what it is: a tool.



7 This can then lead on to adding graphic objects like chevrons and, in this instance, buildings. All these shapes will add detail and depth to the image as a whole but must not overpower the core elements. Try to use the same colour palette as demonstrated.



8 Using the same colour palette, continue to perfect the graphic shapes you have placed by adding darker/lighter shades to them. This will add a sense of distance and texture.



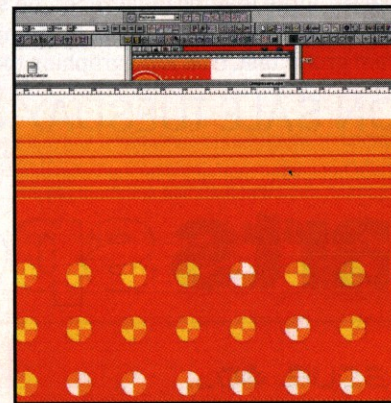
9 Fine-tune your work by ensuring that your core elements are not obstructed by secondary objects. Do this by either deleting them if they are too noticeable or placing them behind the element they cover.



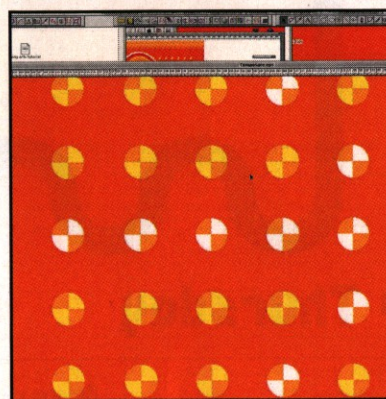
10 Add mini graphic touches that will add extra details to your border. Here, Identikal has added its factory logo signature, which is applied to almost every illustration it does.



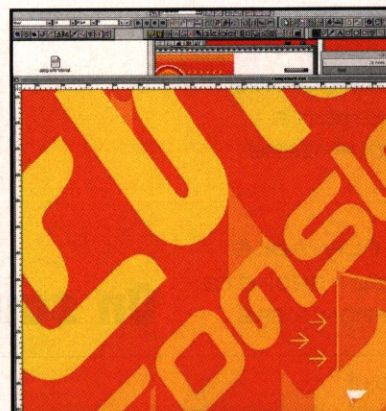
11 With the typography we have copied a version and turned it to white outlines. Again, this has been added to weigh up the textures to bring the viewer's eye to the logotype.



12 With the top of the image we have added lines that have been coloured in a lighter shade to the background. By changing the thickness of them, it will keep the background to the back.



13 We changed the colour of some of the background pattern shapes to add arrows when viewed from a distance. These arrows aren't recognisable at first, but again have been placed to train the eye toward the first object of the hierarchy.



14 With the logotype we added arrows and shades of colour to give it a ruptured look. The whole feel of this illustration is construction and industry, so texture like this gives it this edge.



15 The last stage is to look at the overall final piece and make sure that there's a hierarchy within your composition. Make sure it looks original, solid and well colour co-ordinated.

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THE IDENTIKAL COPORATION

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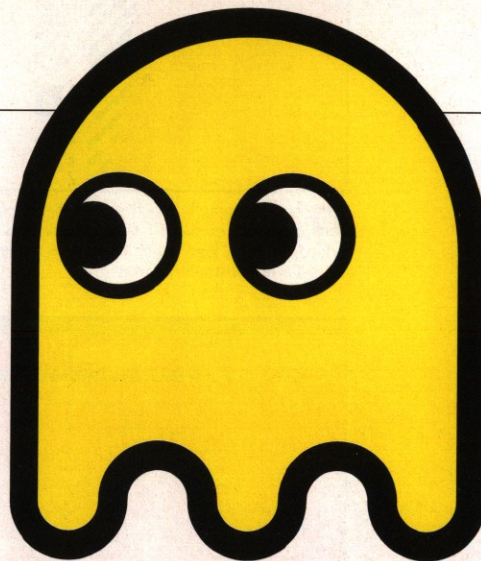
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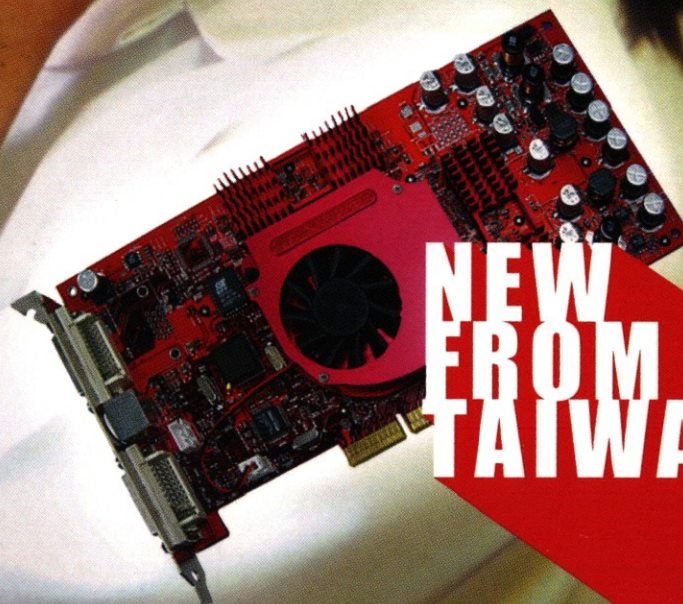
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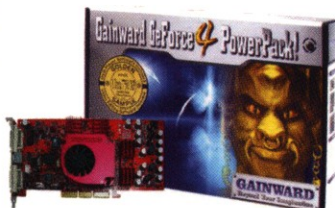
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